Space Feeding Challenges p. 49
Training Boosts Selling p. 62
Aluminum Can Breakthrough p. 82

SEPTEMBER 1958

$1.00

FOOD ENGINEERING

A McGRAW-HILL PUBLICATION

FOR MANAGEMENT
IN MANUFACTURING,
PACKAGING, MARKETING

User dumps new Sterile-Pack fruit-concentrate drum. p. 86

SPECIAL Next Month—PLAN '59, Modernize for Growth, Profits

Because...

the best products you can make depend on the best ingredients you can buy...

LOOK TO Sterwin FOR-

Vitamins

VITAMINS

Essential vitamins by *STERWIN* U.S.P. . . . in bulk and specially prepared carriers . . . quick delivery . . . any quantity, any time. Quality control under constant direction of experienced specialists assures potency, purity, dependability of *each individual batch.*

Colors

Parakeet®

CERTIFIED F.D.& C. COLORS

A complete line of pure colors. Leaders in basic color field for more than 25 years. *PARAKEET COLORS* add eye and sales appeal to many famous food and drug products. Carefully controlled manufacture, rigid laboratory testing guarantee top quality colors. Any shade or color combination desired can be produced.

For Further Information on Sterwin Products Write:

Vanillin

ZIMCO® U. S. P. VANILLIN

Made by world's largest producer of Vanillin. Exquisite flavor and delectable aroma. *Pure* . . . only U.S.P. pure crystals, giving true, vanilla-like flavor. *Soluble* . . . dissolves quicker due to uniform crystalline structure. *Uniform* . . . flavor never varies—use *ZIMCO* as a standard in determining your formula. *Availability* . . . unlimited supply of basic material—ample plant capacity.

STERWIN HELPS STOP YOUR SANITIZING PROBLEMS with ROCCAL®
The Original Quaternary Ammonium Germicide. Provides industry with an effective germicide that is laboratory controlled and tested.

STOCKED FOR QUICK DELIVERY AT:
Atlanta, Buffalo, Evanston, Ill., Dallas, Kansas City, Mo., Los Angeles, Portland, Ore., St. Louis.

Sterwin Chemicals INC.
Subsidiary of Sterling Drug Inc.
1450 BROADWAY, NEW YORK 18, N.Y.

For more data, circle 246 on Reader Service Card

FOOD ENGINEERING
FOR MANAGEMENT

SEPTEMBER 1958

VOL 30 NO. 9

Trends & Forecasts 7
Developments to Watch . . 15
Washington Report 23
Comments & Questions . . . 37
Opinion 43
Men & Companies 133

GENERAL

Space Feeding Challenges Food Engineers 49
It may become vital to our defense. . . . Prime hurdles and how food men should gage them.

***This 3-Phase Attack Routs Sanitation Hazards (D-1)** 51
Sharp focus on follow-through tactics that keep your problems solved.

What Top Food-Firm Men Earn 53
Revealing comparisons of their pay levels with those of 'opposite numbers' in other fields.

How to Cut Your Accidents in half 55
Curtiss demonstrates with 'built-in' anti-mishap program. Cites figures to prove efficacy.

Copier Breaks Data Jam 59
Fast reproduction unit assures smooth flow of vital information. Special 'twists' aid.

***Ole Sage Episode:* Is Rating of Production Workers Feasible?** . 61

MARKETING

Broad-Gage Supervisor Training Boosts Selling 5 Ways 62
How Nestle sharpens up its front-line sales staff for top results in national market.

***Map for Market Progress (D-2)** 64
You can gage your firm's pace on this chart of area food sales, populations, and incomes.

'Blueprinted' Teamwork Bags Profits 65
Quaker Oats boosts performance with marketing pattern that keys production to sales.

Case History of Month . . . 68 *Marketing Signals* 70

PACKAGING

Luxury-Look Package Builds Market for Specialty—Fast 74
Handsome container catapults new premium-price chicken fry into best-seller class.

Versatile Bottle Uncaser Reduces Work and Breakage 76
Gently handles several different brewery packs. Size changes made in jiffy.

2 New Flms Trigger Competition for Polyethylene 78
Derived from nylon and polypropylene, they're high in strength, low in permeability.

Creating the Package . . . . 82 *New Packages & Products* . 28

MANUFACTURING

Sterile Packing in Drums Achieved With New Process 86
Quality of concentrates guarded, handling labor cut using 55-gal. containers.

Libby Units Speed Processing 89
Improved forming-wrapping and kettle charging save time, labor, and ingredients.

Color Engineering Gives Plant Big Lift 91
Pastel-hued walls and equipment stimulate higher performance at new Pepsi facility.

Speeds High-Bin Unloading 95
Densely packed solids kept free-flowing by injection of 'fluidizing' air.

Practical Ideas 99

ENGINEERING & TECHNOLOGY

***These Nomographs Simplify Syrup Calculations (D-3)** 108
They speed preparation of uniform-flavored canned fruits by abolishing tedious figuring.

Controls Consistency In-Stream 111
Recording monitor gages any deviation, instantly converts it to a process correction.

They Save by Using Common Carrier 115
Vinegar producers also profit by switch from wood to stainless steel transport.

Flavor Problems Weighed 117
Vanilla adulteration, new frozen dessert standards, additives probed by extract makers.

Advances in Technology 123

Service Center

New Equipment & Supplies 143
Just Off the Press 159
Useful New Books 166
Recent Inventions 171
Classified Advertising . . . 174
Advertisers' Index 178
Advertisers' Literature . . . 180
Reader Service . . . Back of issue

* Free reprint available. Write key number (following title) on Reader Service Card, back of issue.

Protect quality with .00003 accuracy
. . . INDUSTRY'S HIGHEST!

Bausch & Lomb

PRECISION Refractometer

Here, to keep production quality to your strictest standards, is the most accurate Abbe-type refractometer on the market. You can get fast, easy readings accurate to *at least* .00003—three times higher than any other Abbe! Year after year, too, because parts are compensated against wear. (Test prism available for instrument check, certified by U. S. Bureau of Standards.)

Test transparent or opaque samples, liquid or solid, by transmitted or reflected light. $1.20n_D$-$1.70n_D$ range with three quickly interchangeable prism assemblies.

If high accuracy is significant in your work, you'd do well to send for complete information on the B&L Precision Refractometer.

BAUSCH & LOMB OPTICAL CO.
60333 St. Paul St., Rochester 2, N. Y.

Send me complete data on the following B&L Refractometers:

☐ Precision ☐ Industrial ☐ Hand
☐ Abbe-3L ☐ Butyro ☐ Juice
☐ High Range Abbe-3L ☐ Oil Grading ☐ Dipping
☐ I'd like a demonstration of the models checked above.

NAME, TITLE .....

COMPANY .....

ADDRESS .....

.....

MAIL COUPON FOR DATA AND ON-THE-JOB DEMONSTRATION OF INDUSTRY'S MOST COMPLETE LINE

BAUSCH & LOMB
SINCE B&L 1853

FOOD ENGINEERING

GRAHAME E. RIDDELL ..... *Publisher*
FRANK K. LAWLER ..... *Editor*
A. V. GEMMILL ..... *Senior Associate Editor*
C. R. HAVIGHORST ..... *Senior Associate Editor, San Francisco*
HERB POWELL ..... *Managing Editor*
JOHN V. ZIEMBA ..... *Associate Editor, Chicago*
LEONARD TRAUBERMAN ..... *Associate Editor*
THAYER C. TAYLOR ..... *Associate Editor*
EDWARD P. McGRATH ..... *Art Editor*
VIRGINIA VAN ZANDT ..... *Editorial Assistant*
S. D. KIRKPATRICK ..... *Consulting Editor*
R. S. McBRIDE ..... *Consulting Editor*
G. B. BRYANT, JR ..... *Washington*
JOHN R. WILHELM ..... *Manager, News Bureau*
DEXTER M. KEEZER ..... *Economics Department*
IVAN C. MILLER ..... *Circulation Manager*

Domestic News Bureaus; Atlanta, Charles T. Dixon, Jr.; Chicago, Stewart W. Ramsey; Cleveland, William G. Meldrum; Dallas, Kemp Anderson, Jr.; Detroit, Donald MacDonald; Los Angeles, John Kearney; San Francisco, Margaret Ralston; Seattle, Ray Bloomberg; Washington, D. C., George B. Bryant, Jr. Also, correspondents in 75 major cities.

World News Bureaus: London, William J. Coughlin; Paris, Robert E. Farrell; Moscow, William Coughlin; Tokyo, Sol Sanders; Boon, Morrie Helitzer; Beirut, O. M. Marashian; Mexico City, Peter Weaver; Carcacas, John Pearson. Also, correspondents in 59 major cities.

FOOD ENGINEERING (Formerly Food Industries) September 1958, Vol. 30, No. 9.

Published monthly by the McGraw-Hill Publishing Co., Inc., James H. McGraw (1860-1948), founder. **Executive, Editorial, Circulation, and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Publication Office: 99-129 N. Broadway, Albany 1, N. Y. See panel below for directions regarding subscriptions or change of address. Second class mail privileges authorized at Post Office, Albany, N. Y. Printed in U.S.A. Title registered in U.S. Patent Office. ©Copyrighted 1958 McGraw-Hill Publishing Co., Inc., all rights reserved. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice-President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice President, Publications Division; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. Subscriptions are solicited only from men with management responsibility in manufacturing, marketing, packaging, engineering and technology in companies engaged in food manufacturing. **Position and company connection must be indicated on subscription orders. Send to address shown in box below.** Rate, U.S. possessions and Canada, for individuals in field of publication $3.00 per year, single copies $1.00; all other foreign $20 per year.

SUBSCRIBERS: Send subscription correspondence and change of address to Fulfillment Manager, Food Engineering, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify Fulfillment Manager promptly of any change of address, giving old as well as new address, and **including postal zone,** if any. (Official Post Office Request). If possible, enclose an address label from a recent issue of the magazine. Since copies are addressed one to two issues in advance, please allow one month for change to become effective.

Postmaster: Please send form 3579 to Food Engineering, 330 W. 42nd St., New York 36, N. Y.

PACKAGED AIR HEATERS for FOOD PROCESSING

Extreme compactness, high efficiency and versatility of operation are the chief characteristics of the THERMAL Type CA direct fired air heater. Designed around the high velocity THERMAL burner, it normally requires no refractory, since combustion is limited almost entirely to the burner itself. Adding to its versatility, the CA air heater performs equally well on gas, oil or combination firing and can be adapted to all pressure levels.

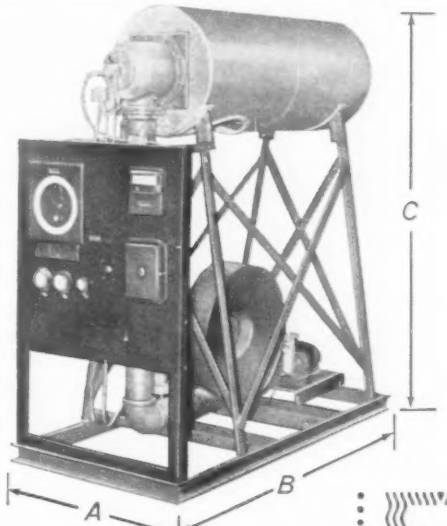
Type CA direct fired

Type CA air heaters are most frequently sold as "packaged" units complete with all necessary safety and control apparatus. These units will provide outputs ranging from 200,000 BTU/hr to better than 30,000,000 BTU/hr and at temperatures from 300F to 1500F or higher.

TYPICAL SIZES . . .

Listed below are the overall dimensions of a few of the dozens of output, temperature, and flow combinations possible in these heaters. Figures are for atmospheric pressure units. Higher pressure heaters would be smaller.

BTU/hr	AIR FLOW scfm	TEMP. IN F	TEMP. OUT F	A ft.	B ft.	C ft.
800,000	1,000	60	750 F	2½	4½	4
2,500,000	5,000	60	500 F	4	7	6
4,000,000	16,000	700	900 F	7	11	8
10,000,000	8,500	60	1,000 F	5½	10	8
15,000,000	10,000	60	1,200 F	6	12	8



Write for Bulletin #112

THERMAL

Thermal Research & Engineering Corp.

CONSHOHOCKEN • PENNSYLVANIA

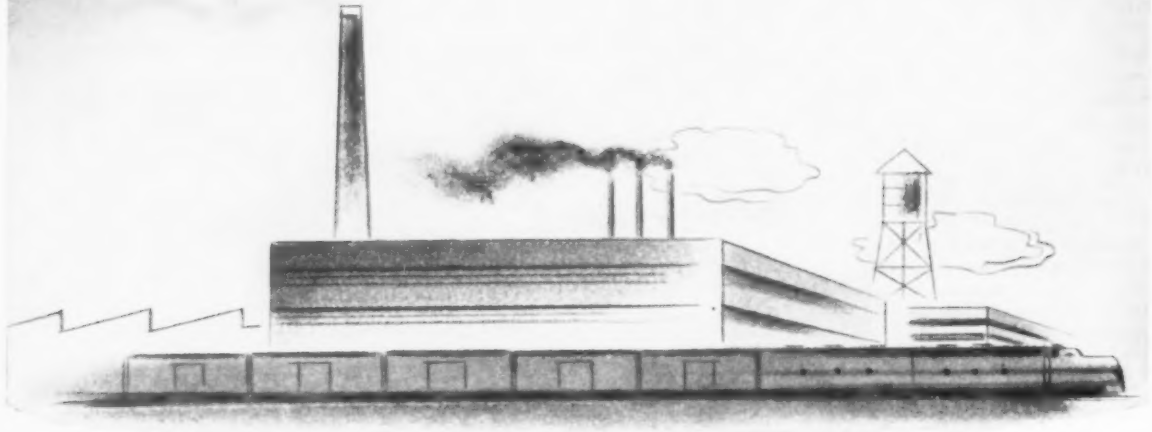
REPRESENTATIVES IN PRINCIPAL CITIES

Other Thermal Products & Services:

Gas, Oil & Combination Burners
Heat Exchangers
Gas Generators
Submerged Combustion
Combustion & Heat Transfer Equipment

Good "Plantkeeping" for the Food Industries

- CREATIVE RESEARCH
- TECHNOLOGICAL ADVANCEMENT
- APPLICATION ENGINEERING
- EQUIPMENT SALES AND SERVICE
- PLANT LAYOUT AND DESIGN
- PRODUCT ENGINEERING
- POST-SALES SERVICE
- COMPLETE PRODUCT LINES
- QUALITY CONTROL



Through ALL the Services of FMC

Among food processors, FMC symbolizes a good deal more than "the world's largest manufacturer of food preparation and processing equipment." You might call it good plantkeeping, the multiple services that begin with an idea – frequently from a processing plant with a problem – and result in the development of better equipment for better food products. Through more than 70 years FMC has been "putting ideas to work" toward this end. If you are looking for a way to improve your current methods, perhaps this background of experience can be helpful. Call on FMC...your partner in progress...past, present and future.

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Canning Machinery Division

General Sales Offices:

WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

For more data, circle 249 on Reader Service Card

TRENDS & FORECASTS

SPECIAL
FOOD
ENGINEERING
SERVICE to
EXECUTIVES

There has been strong upturn in general business. Food sales continue high, being 8.2% above last year in first 7 months for eight chains.

Net income of 47 food and beverage manufacturers increased 12% in 2nd quarter of '58 compared to 1st. Gain was 1% for 1st half of '57 over '58.

Mothers' increasing awareness of nutritional values is increasing sales of baby foods despite slight leveling off in nation's births. And birth rate will spurt in mid-60's as war-born babies start own families.

With 29 to 32% of consumer income after taxes going for food, the nation will spend $80 billion to eat this year, Advertising Council predicts.

Business in prepared mixes amounted to $450 million last year and is expected to set a new record in '58.

Consumers spent $68 million in '57 for low-fat, low-calorie foods.

Quality standards are credited with turning fish stick sales up after slump in '56. Five plants have continuous inspection.

Portion-control items for institutional trade continue to increase in demand, and alert food companies are expanding such lines.

Peanuts have been supplanted by potato chips in popularity at ball parks and other amusement arenas, Nutrition Research Council reports.

With larger California pack, frozen strawberries likely will be more plentiful. Nation-wide stocks at mid-year were 5% higher than in '57.

Inventory of frozen orange juice concentrate was 21.5% lower on Aug. 2 than year earlier, or 23,262,047 gal., Florida Canners Assn. reports.

Declines of 20% are reported for frozen asparagus and spring spinach. Packs totaling 24,096,744 lb. and 60,718,252 lb., respectively, NAFFP reports.

Dried fruit is victim of change in food fashions, according to Consolidated Foods. Housewives are turning to canned and frozen fruits.

While dropping 7 frozen red meats because of consumer price-resistance, Armour is doing well with a dozen specialty and 40 institutional items.

Building costs continue to rise, and by December will be 2.7% higher than a year earlier, *Engineering-News Record* predicts.

Food Outlook Still Rosy

Consumer demand for food is expected to continue high this summer and fall, because consumer disposable incomes are likely to be maintained at a high level. That is the forecast by USDA in its latest report on the national food situation.

Supplies of some foods—particularly meats and fresh fruits and vegetables—will be somewhat larger than in the first half of 1958.

Retail food prices are likely to average below those of January-June but slightly above those in the last half of 1957.

Meat supplies are now on a seasonal upswing. Compared with year earlier, consumers are expected to have more pork and top grades of beef per person, but less veal and the lower grades of beef. More chicken meat and about as many eggs are in prospect, but less turkey.

Per capita supplies of dairy products this summer and fall are expected to be at the year-earlier level.

Supplies of food from crops will be as large this fall as last. Food

See Developments to Watch p. 15

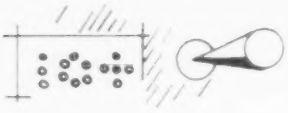
BASIC WEIGHT CLASSIFIER

...new aid for controlling your quality and costs

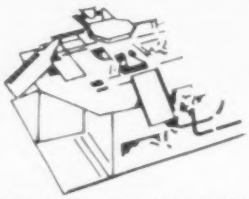
CHECKWEIGHS
products
packages and
assemblies

CLASSIFIES
by weight

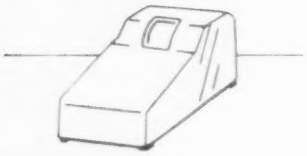
. . . and through electronic controls, performs these and many other remote functions!



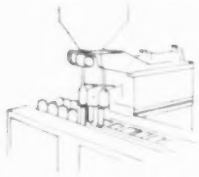
OPERATES SIGNALS



ACTUATES MECHANISMS



RECORDS DATA



CONTROLS PROCESSING

Now you can checkweigh or classify items by weight and utilize the data wherever you need it — and in the form that best fits your needs. The Basic Weight Classifier, employing Shadograph Scale with photocell controls, provides electronic signals which indicate correct weight, or over or under within pre-set limits. Any number of classifications from 2 to 128 may be used. Units are available to handle items in any shape in a capacity range from 2,000 milligrams to 100 lbs. Write for Bulletins 3333 and 3347.

Exact Weight SCALES

THE EXACT WEIGHT SCALE CO.
910 W. FIFTH AVE., COLUMBUS 8, OHIO
In Canada P.O. Box 179, Station S, Toronto 18, Ont.

Sales and Service Coast to Coast

Find us in your local Yellow Pages

BETTER QUALITY CONTROL . . . BETTER COST CONTROL

Trends & Forecasts

crop production will be at a very high level. A large part of the increase over last year will be in crops such as wheat, for which consumption rates have been declining gradually.

Among items expected to be in heavier supply than in the last half of 1957 are edible oils, potatoes, melons, and fresh deciduous fruits. Consumers will likely have about as much fresh and processed vegetables and processed deciduous fruits per person.

Sharp reductions from the high levels of a year earlier are in prospect for processed fruit juices. Fresh oranges will be in much shorter supply this summer than last. Cereal food products will continue plentiful.

Exports of food will likely be somewhat lower this year than last. The reduction will be primarily in food grains, but also in food fats and oils.

HORS D'OEUVRES

▶ California wines have out-scored the finest vintages of Europe in 68 comparative tastings. Misguided gourmets please note.

▶ The Boscobel (Wis.) Dial suggests that flour seeds be incorporated into beer cans. Then beauty would spring up wherever an empty is tossed. Each brewery could have its own "brand" of flower to combine promotion with beauty.

▶ Food firms should promote the sale of dishwashers. The easier the mess to clean up, the bigger the mess that will be cooked up.

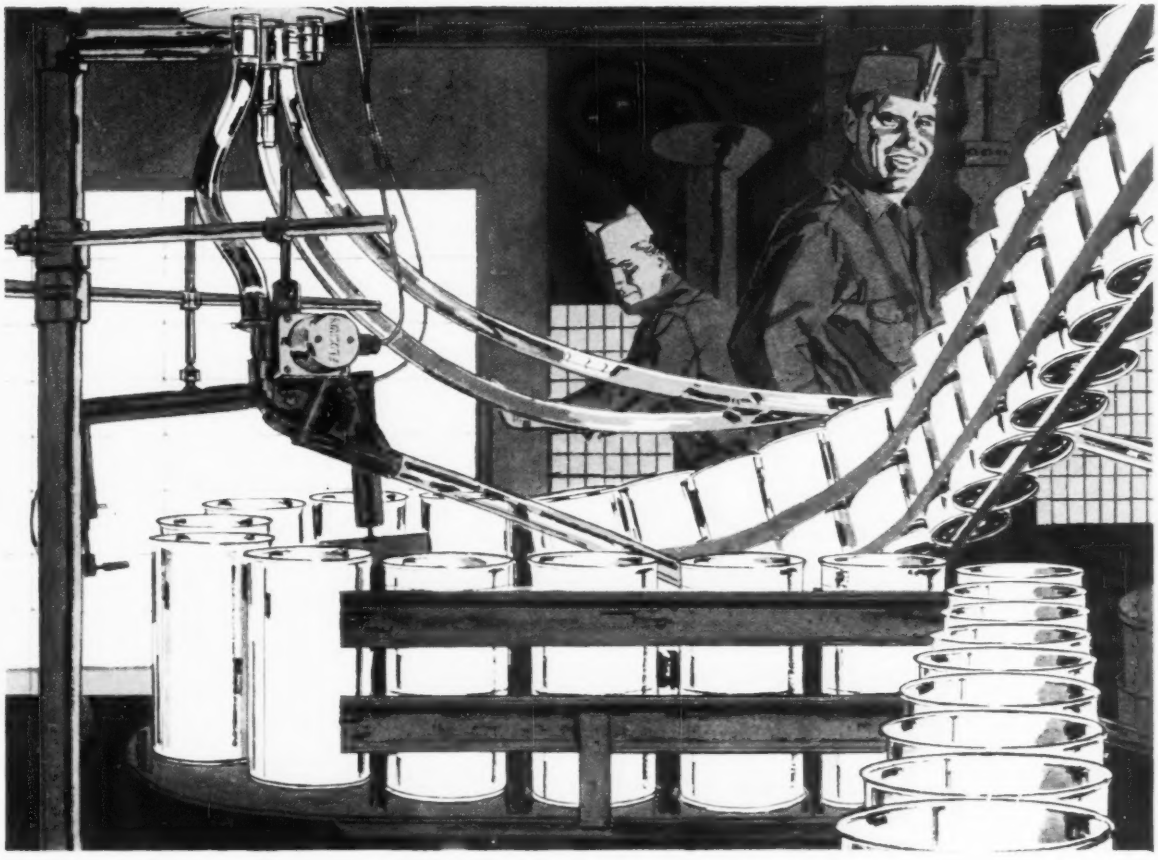
▶ Golden nematodes are not harmed by radiation dosages fatal to people. Now you know how the insect could inherit the earth.

▶ A sugar derivative is being added to oil-well drilling mud in Oklahoma. One way to bury the food surplus.

▶ High-octane beverages can be packaged in a new plastic film to save carrying weight. Just the thing for fishermen who don't like to fish.

▶ Viking coffee is a new Hollywood delight. Laced with meade, or honey wine, it makes you feel like an heroic Norseman.

For more data, circle 250 on Reader Service Card



Completely new kind of dispenser!

Amazing Flocron cuts waste, saves on costly ingredients

Canners, packers and food processors who are now using the new Flocron liquid dispenser report big savings on the ingredients they use. For the Flocron avoids waste inherent in the "overflow fill" system; handles costly ingredients with money-saving speed and accuracy.

This savings is possible because the Flocron is actually a precise electronic system with photoelectric circuits to activate dispensing and assure high-speed accuracy—even on lines handling up to 300 units per minute! Easy-to-use remote electronic controls allow you to "dial" any amount of liquid you want dispensed to your lines.

Designed for efficient, low cost operation. The Flocron, made of stainless steel and plastic, is constructed to avoid costly repairs or lengthy breakdowns that can hinder your operation. There are no valves to stick or clog. The Flocron is easily cleaned by merely flushing the fluid system.

No need to revise production lines. The Flocron can be operated with existing equipment. Scientific Dispensing Company technicians are available in all areas to assist with installation and service problems.

The Flocron accurately dispenses: Brine • Hot butter • Monosodium Glutamate • Concentrated syrup • Ascorbic Acid • Brine and sugar • Spice oils • Coloring • Oil • Flavors • Chicken fat • Medicinal liquids.

The Flocron liquid dispenser is offered only by the Scientific Dispensing Division of the Morton Salt Company.

Mail coupon for more information!

Please send me additional information about the Flocron liquid dispenser.

Name _____ (Please print)

Title _____

Company _____

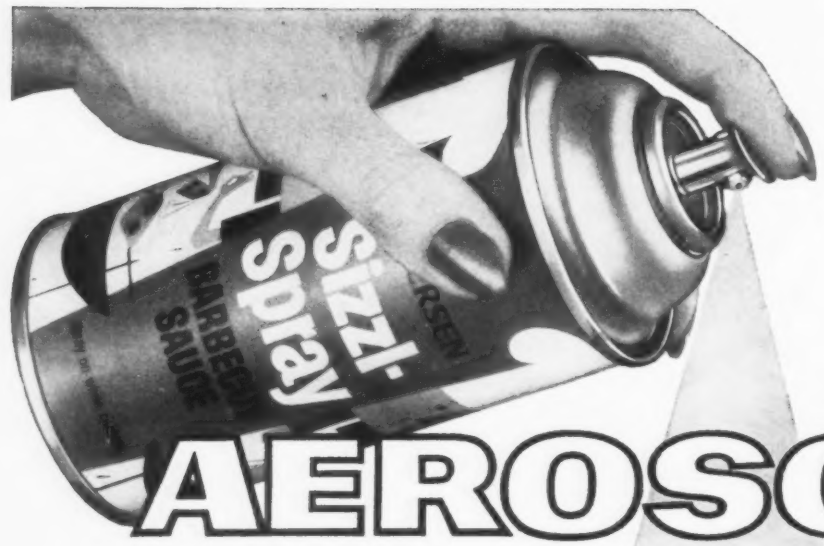
Address _____

City _____ Zone ____ State _____

Scientific Dispensing Company
Division of
MORTON SALT COMPANY

Dept. FE 9-58
110 N. Wacker Drive
Chicago 6, Illinois

For more data, circle 251 on Reader Service Card

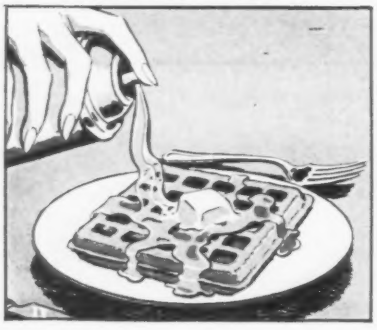


Pioneered

AEROSOLS

BARBECUE SAUCE
Barbecue sauce achieves new convenience and ease of use in an aerosol can by Continental. Barbecue sauce is dispensed in a spray pattern.

MAPLE SYRUP



CHOCOLATE SYRUP

SALAD OIL

and perfected by
Continental Can...

FOR FOOD

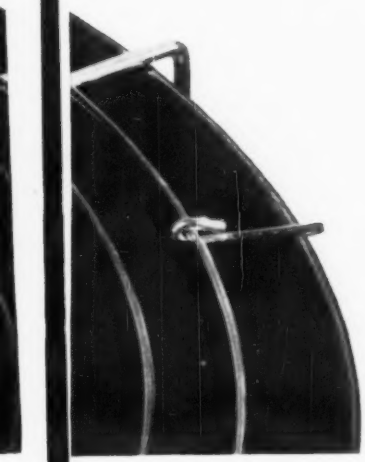
New Continental Development* ushers in new era of food packaging!

*In cooperation with Andersen Foods Co., division of Heublein, Inc., and Western Filling Company.

New food products get "push-button" dispensing! New Continental aerosol cans dispense either oil or water based food products in a *foam, spray, or stream pattern.*

This Continental development brings food packers to the threshold of a spectacular new market. Push-button foods from barbecue sauce to chocolate syrup are already on the market or will soon appear. Sales of aerosol foods promise to surpass the amazing success of non-food aerosols which skyrocketed to 350 million units in 1957.

Numerous new food products are now being tested at Continental's new Research and Development Center. Fillers and valve and equipment suppliers have cooperated to make this packaging break-through a commercial reality. For an appraisal of your food product's potential in an aerosol food can, call your nearest Continental representative.

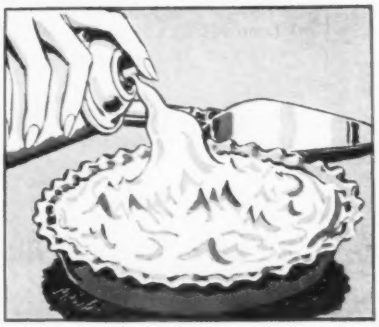


CONTINENTAL CAN COMPANY

Eastern Division: 100 East 42nd Street, New York 17
Central Division: 135 South La Salle Street, Chicago 3
Pacific Division: Russ Building, San Francisco 4
Canadian Division: 5595 Pare Street, Montreal, Que.

CHEESE SPREAD

MERINGUE TOPPING



YOUR PRODUCT?

Del Monte FOOD PRODUCTS

superior quality at

5 tons per hour

with the

RODNEY HUNT®

Turba-Film® Processor

TO SOLVE YOUR PROCESS PROBLEMS...

Rodney Hunt welcomes specific requests for help in solving process problems involving mechanically aided heat and mass transfer, for product testing and for evaluation of processing techniques. Our fully equipped laboratory and pilot plant is staffed by engineers and technicians with wide experience across the entire range of thin-film processing, from one-half micron to atmospheric pressures.

For those who prefer to do their own testing and research, portable laboratory-size Turba-Film and Vacu-Film Processors are available for purchase or rental. With these units, thin-film processing techniques can be properly evaluated. Test results obtained from pilot-size Vacu-Film and Turba-Film Processors can be readily extrapolated to production-size units.

Please address your inquiries to the Process Equipment Division.

The Del Monte label has long meant superior quality in canned and processed foods. In producing Del Monte fruit concentrates, the California Packing Corporation uses a Rodney Hunt Turba-Film Processor to assure desired quality and character—a thick paste with fine flavor and good color.

Operating 24 hours a day during the peak season, this Turba-Film Processor maintains an excellent operating record with a minimum of maintenance. Pears and apricots are processed to a concentration of about 2.5 to 1 at a rate of 5 tons per hour—tomatoes to a concentration of about 3.5 to 1 at 3 tons per hour. And the equipment is readily variable to meet the different heating temperatures and operating pressures required for each product.

The taste and quality of the concentrate is protected from the injurious effects of overheating because of the precisely controlled, short-time exposure of the product in the thermal section. This is one of the most important advantages of the Rodney Hunt Turba-Film Processor—an advantage that has been widely applied throughout the process industries. Whether for chemicals, petroleum residues, pharmaceuticals and other temperature-sensitive products, the Turba-Film Processor will consistently and automatically retain the essential properties and desired qualities of the product being processed.

RODNEY HUNT MACHINE CO.

PROCESS EQUIPMENT DIVISION **32 VALE ST., ORANGE, MASS.**

RODNEY HUNT

SERVING THE PROCESS INDUSTRIES WITH EQUIPMENT AND ENGINEERING

For more data, circle 253 on Reader Service Card

Assembly is simple

with bucket elevators LINK-BELT-built from head to boot

CHAINS, SPROCKETS, PULLEYS — a type and size to handle all kinds of material, satisfy any application requirement.

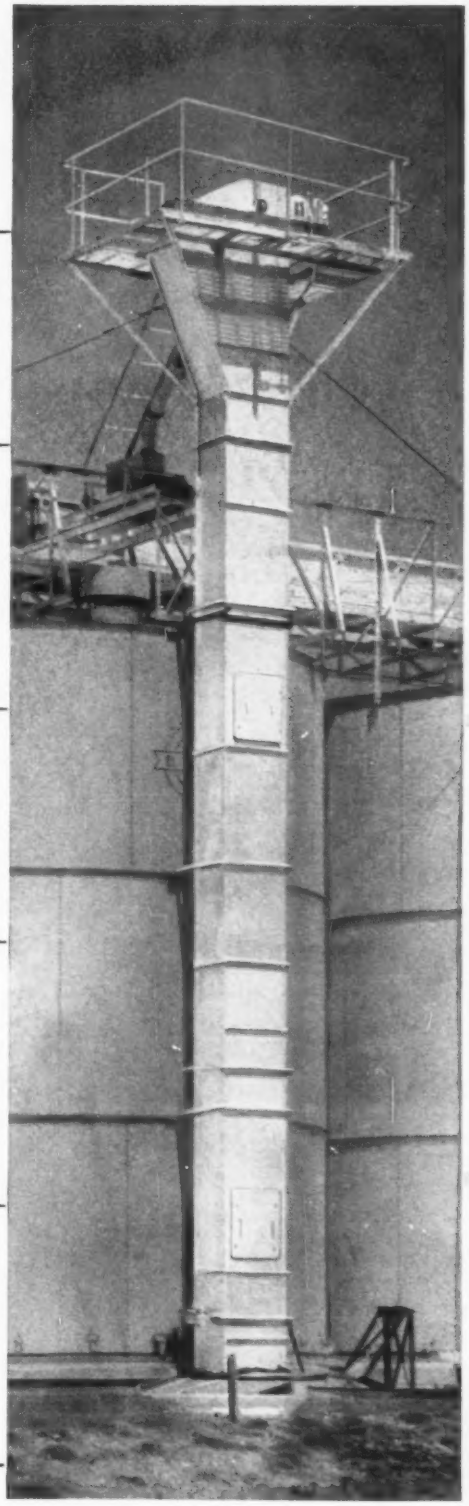
BEARINGS — We make all types — babbitted, bronze, ball and roller — to meet your specific service conditions.

CASINGS—are furnished weather- or dust-tight. They are self-supporting —where conditions warrant, lateral tie-in can be supplied.

ENCLOSED GEAR DRIVES — Gearmotors, Motogears, Worm Gear Drives — in sizes and ratios to meet any requirement.

BUCKETS—All types and sizes suitable for handling a variety of materials are available from stock.

TAKEUPS—A type suitable for adjusting elevator chain or belt to proper tension — babbitted, bronze, ball and roller bearing types.



All components are designed and manufactured for quick installation, smooth performance

HERE'S a point worth considering when you review prices on bucket elevators. Installation costs have a big effect on the total outlay. And your best bet for holding field erection costs to a minimum is by relying on Link-Belt.

Reasons are: first, Link-Belt *manufactures all bucket elevator components*—your assurance that designs are related. Secondly, it's easy to select the proper bucket elevator to meet your specific requirements from Link-Belt's complete line. And third, with each Link-Belt bucket elevator you get built-in alignment.

In addition, Link-Belt will erect your elevator and accept full installation responsibility. For more details and assistance in selecting a suitable bucket elevator for your operation, call your nearby Link-Belt office today. 14.71E

Designed for maximum elevating efficiency . . .

◀ **LIGHT, FRIABLE OR SLUGGISH MATERIALS**, and those tending to stick to buckets are handled efficiently by positive discharge elevators.

FRAGILE MATERIAL— ▶ pellets, nuts, seeds, etc.—get gentle handling in internal discharge elevators offering high capacity. Double head shafts operate in fixed bearings.

LINK-BELT

BUCKET ELEVATORS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World.

For more data, circle 254 on Reader Service Card

Where valves need 9 lives...

STRONGER J-519 SPINDLE
of high tensile bronze exceeding 60,000 lbs. tensile strength. Tough to withstand excessive stresses. Hard to assure long wear. Large in diameter, with extra length of threads. Head is crowned for friction-free bearing on plug.
HEAVY BONNET
has unusually long thread bearing surfaces for spindle engagement, reducing thread load and increasing service life. Centering lip or ring fits snugly into body and acts as internal brace. Bonnet bronze exceeds standard specifications.
BACK SEATING PROTECTS THREADS
Top of spindle head is machined to provide a tight seal against back seating surface of the bonnet when valve is fully open, permits repacking under pressure. This location of back seating joint protects operating threads when valve is wide open.
500 BRINELL PLUG AND SEAT RING
of special JX500 Chromium Stainless Steel. Accurately machined, mirror-smooth seating surfaces assure absolute tightness and long life. Wide, steep seating surfaces permit extremely close regulation of flow and vapor-tight closure.
EXTRA HEAVY BRONZE BODY
liberally proportioned for extra strength to resist all pipe strains. In 150 lb. valve, bronze exceeds specifications of ASTM B-62. In 200 and 300 lb. valves, bronze exceeds specifications of ASTM B-61.
JENKINS FIG. 576-P
Plug Type Armor Seat
Bronze Globe Valve

Install this JENKINS...made to defeat valve-killers

HERE are just five of the eighteen ways by which Jenkins Plug Type Valves have been engineered for maximum wear in valve-killing services. For any close-control steam service like drains, bypass lines, drips, blowoff, throttling, bleeders . . .

Or where abrasion, entrapped pipe chips, scale or rust tubercles are a problem . . .

You'll cut maintenance and replacement costs by specifying *"Jenkins Plug Type, with the 500 Brinell Stainless Steel Armor Seat"*. In the Jenkins Catalog are 150 lb., 200 lb. and 300 lb., Globe and Angle, screwed or flanged end valves in a full range of sizes. And, they are available quickly from local distributors' stocks.

WRITE us, or ask your Jenkins distributor for descriptive folder No. 202-A. Jenkins Bros., 100 Park Avenue, New York 17.

JENKINS
LOOK FOR THE JENKINS DIAMOND
VALVES
SINCE 1864 TRADE JENKINS MARK
Jenkins Bros.

Sold Through Plumbing-Heating and Industrial Distributors

DEVELOPMENTS TO WATCH

SPECIAL

FOOD ENGINEERING

SERVICE to EXECUTIVES

Other uses are seen for in-stream analytical instrument that detects few ppm. of liquid sugar in condensate from evaporators. Instrument automatically takes sample, adds reagent, and makes analysis. Its modular makeup permits various analyzers to be employed.

Sprouting of potatoes during storage is stopped by new alcohol vapor applied by fumigation techniques, Imperial Chemical Industries reports. Used when potatoes show signs of sprouting, treatment does not affect taste.

Two new drugs reported by USDA will aid poultry producers. Glycarbylamide in feed improves weight gain. Nicarbazin reduces mortality rate.

Saving of 30¢ per pound of poultry meat is reported for machine boning that reduces labor and ups yield. Flotation separates meat and bones.

Russian technical information now is translated for American reading by Foreign Technical Information Center of U.S. Department of Commerce. Microbiology, chemistry, and colloid journals are among those translated.

Species of tasty turkey that can be marketed in 12 weeks has been developed. Attempts will be made to obtain year-around turkey egg production to revolutionize growing and processing economics.

Fresh color and flavor are retained longer if frozen fish steaks and fillets are dipped in medium solution of corn syrup solids. Thin, flexible coating reduces rate of oil oxidation.

Procedures for producing concentrated boysenberry juice that consumers like have been developed by Western Utilization Research Div., USDA.

Convenient precooked and canned instant rice has been developed by WURD. Market tests in Fresno, Calif., point to commercial possibilities.

Boil-in-pouch package for processed rice and instant cereals is in development stage at Shellmar-Betner. It involves coated porous material that allows water to enter package but prevents product from seeping out.

Glass containers are raised, not dropped, into cases by new automatic packer that minimizes breakage, downtime, and operator attention.

Metal cans are made 50% faster, more than 750 per min., by new Continental Can technique. Two bodies are made in tandem from double-size blanks and separated at pre-scored line after forming and soldering.

See Washington Report p. 23

Beer in aluminum cans is now on market. Cheese spread soon will be packed in shallow-drawn lacquered aluminum cans.

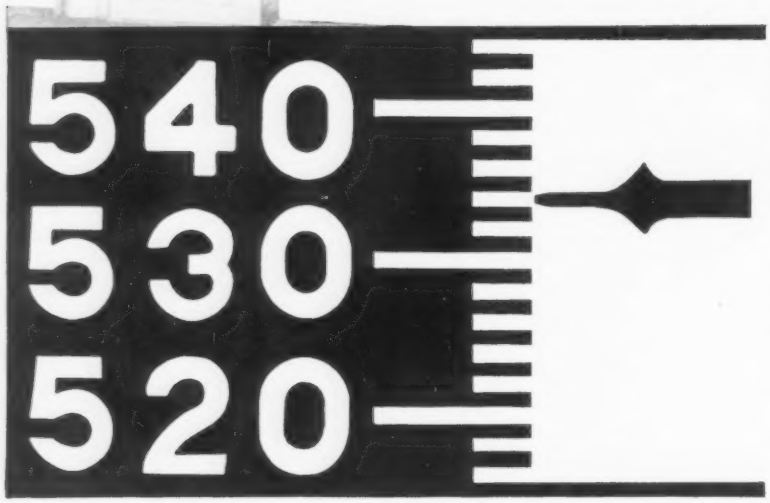
New easy-opening, leak-proof paperboard carton for frozen fruits has no metal ends. Special filler for carton has been developed.

Pabst acquired Blatz in move to multiple-brand distribution, with one beer complementing the other. This is trend among national brewers.

SEE NEXT PAGE →

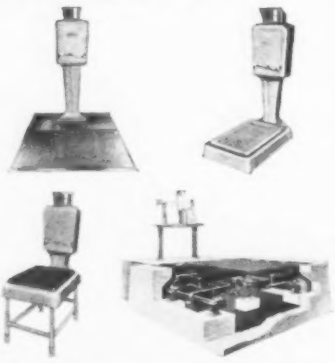
HOWE
WEIGHTOGRAPH

READ WEIGHT IN NUMBERS THIS BIG



NO MORE "SCALE SQUINT!"

Pin up this ad and look at it from across the room—see how easy it is to read the weight! You can attach a Howe Weightograph to any beam scale, from small bench scales to the largest truck and railroad scales; different models available for different capacities. Standard models plug into ordinary electric outlet. So much easier, faster, more accurate, it quickly pays for itself. Use indoors or out . . . adjusts to eye level . . . parallax errors are completely eliminated.



Send for this detailed booklet and local representative's name—see the Weightograph demonstrated!

HOWE

THE HOWE SCALE COMPANY • RUTLAND, VERMONT

A SUBSIDIARY OF SAFETY INDUSTRIES, INC.

ELECTRICAL DIVISION • ENTOLETER DIVISION
LIGHTING DIVISION • AUTOMATIC TIMING & CONTROLS

Developments to Watch

AS MANY AS 5,000 messages daily can be flashed by this new automatic communications center operated in Chicago by Armour to link 50 company producing and selling units. Coded tape units are seen left, teletype printers right.

Packers Speed Orders & Data

Vital company communications have now been "double-quicked" by two top meat packers—Armour and Swift—following their installation of new tape-and-teletype systems.

Used to flash such information as buying and selling orders, shipping details, market data, etc., the systems have greatly accelerated operations through the respective national networks of the two companies. Each comprises half a hundred key centers.

Messages are transcribed into coded perforations on tape. The tapes are then fed into machines for sending impulses over the proper circuits to the receiving stations. Here, these impulses directly operate teletype printers or are reproduced in tape form for relaying or data processing.

The Swift system expands company facilities five-fold. It can transmit 1,500 words a minute.

Further, Swift has "magic brain" data-processing units in 20 locations thus speeding accounting operations through the complementing communications net.

Retail Juice-Box Temp Checks

Still-tighter frozen juice quality control is the big aim. So checks of temperature in retailers' cold boxes are now projected nation-wide.

These inspections are to be made by Market Research Corp. of America under a new joint contract with USDA, Florida Citrus Commission, and California.

Actual tests of box temperature gages for accuracy may be included. The program starts next month.

(More on p. 19)

Mono Sodium Glutamate, when used in the proper quantity, is the key to over-all control of the flavor variables involved in food processing.

Catching up with your competition, maintaining your position in today's competitive market, or leading the field, may depend on your decision to use MSG.

MSG blends, strengthens and preserves the natural fresh flavors of your product. It creates a uniformity of taste, a flavor identity which is the first step in establishing lasting consumer brand preference.

Great Western's MSG is available in bulk 100 lb. and 25 lb. drums.

THE SECRET OF GOOD TASTE ®

GREAT WESTERN

MSG

99+% Pure Mono Sodium Glutamate Crystals

THE GREAT WESTERN SUGAR COMPANY

Denver, Colorado

For more data, circle 257 on Reader Service Card

Harold Dodgen Co., Inc., Ozark, Arkansas process 1,200 Dodgen Prime Quality birds an hour.

M-G Poultry Plant, Weimar, Texas

The lowest-cost way to build better processing plants

Want to go to straight-line processing–increase your capacity and efficiency – or meet the new USDA plant specifications?

Then investigate Butler buildings. Many poultry processors, like the above, found that Butler buildings enabled them to build superior – more profitable – plants and still conserve capital.

Butler's clear-span design provides the unobstructed floor and overhead space needed for straight-line flow of materials. The load-bearing frame permits using economical curtain-walls to separate receiving, killing and eviscerating areas of the building.

Butler metal roof and wall panels are easy to clean, require virtually no maintenance. Precision-fabricated to fit tightly, they seal out weather, vermin and rodents. Excellent ventilation, illumination and climate control are "built-in" features of Butler buildings.

Available from stock, precision-made to permit fast assembly, Butler buildings save weeks and months of costly planning and construction time, permit earlier occupancy, earlier profits.

Before you start to build that new processing plant, contact your Butler Builder. Get full details on Butler buildings – the lowest-cost way to build well. He's listed in the Yellow Pages of the phone book under "Buildings" or "Steel Buildings." Or write to us direct.

BUTLER STEEL PRODUCTS

BUTLER MANUFACTURING COMPANY

7504 East 13th Street, Kansas City 26, Missouri

Manufacturers of Metal Buildings • Equipment for Farming, Dry Cleaning, Oil Production and Transportation, Outdoor Advertising • Custom Fabrication

Sales offices in Los Angeles and Richmond, Calif. • Houston, Tex. • Birmingham, Ala. • Atlanta, Ga. • Kansas City, Mo. • Minneapolis, Minn. • Chicago, Ill. • Detroit, Mich. Cleveland, Ohio • Pittsburgh, Pa. • New York City and Syracuse, N.Y. • Boston, Mass. • Washington, D. C. • Burlington, Ontario, Canada

Developments to Watch

Automated Tomato Products?

Prospects of automation in making tomato ketchup, paste, and puree—with improved product yield and quality—are being advanced by U. of Calif. (Davis) researchers. Also weighed is application to other food concentrates.

New tests project line-flow linking of units for (1) HTST processing to inactivate enzymes, (2) low-temperature product extraction, and (3) filling and lidding of containers in a sterile atmosphere.

Under test with ketchup are several types of enzyme inactivators, also high-vacuum water-removal pans for preparing products retaining more bright red color, flavor, and vitamins, thus making for longer shelf-life.

Schedule of Events

September

15-19—Instrument Society of America, automation conference & exhibit; Convention Hall, Philadelphia.

21-25—Master Brewers Assn. of America, annual meeting. Netherland-Hilton Hotel, Cincinnati.

26-30—American Meat Institute, annual conference & exhibit; Palmer House, Chicago.

30-Oct. 1—Millers' National Federation, annual wheat research conference; USDA Laboratory, Peoria.

30-Oct. 2—Joint Military-Industry Packaging & Materials Handling Symposium, Departmental Auditorium, Wash. D. C.

October

5-8—National Assn. of Food Chains, annual meeting; Palmer House, Chicago.

6-11—International Dairy Show, International Amphitheater, Chicago.

13-15—Packaging Institute, annual forum; Edgewater Beach Hotel, Chicago.

13-15—Produce Packaging Assn., annual meeting; Park Sheraton Hotel, New York City.

14-16—Society of Industrial Packaging & Materials Handling Engineers, annual convention & exposition; Chicago Coliseum.

16-18—National Pretzel Bakers Institute, annual meeting; Penn-Sheraton Hotel, Pittsburgh.

19-21—Brewers' Assn. of America, annual convention & exhibit; Edgewater Beach Hotel, Chicago.

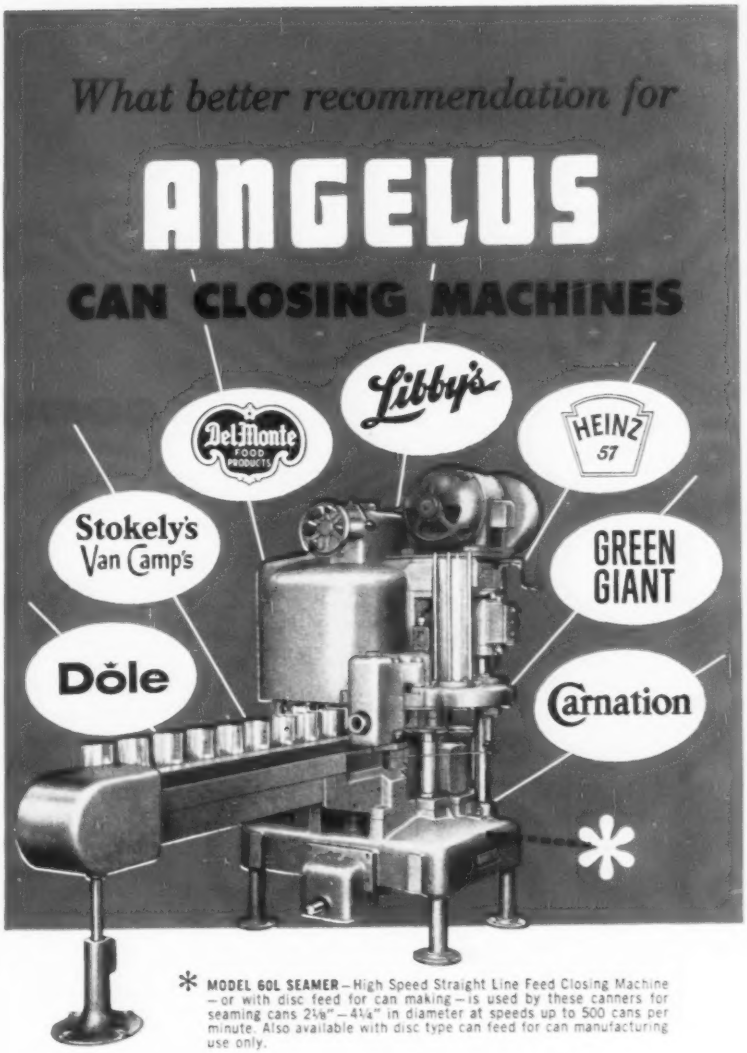
20-22—American Oil Chemists' Society, annual fall meeting; Hotel Sherman, Chicago.

21-24—American Dietetic Assn., annual meeting & exhibit; Trade & Convention Center, Philadelphia.

22-24—National Pickle Packers Assn., convention & exhibit; Edgewater Beach Hotel, Chicago.

25-29—American Bakers Assn., annual meeting; Hotel Sherman, Chicago.

26-29—National Frozen Food Distributors Assn., National Prepared Frozen Food Processors Assn., joint merchandising convention & exhibit; Hotel Statler, New York City.



* MODEL 60L SEAMER—High Speed Straight Line Feed Closing Machine—or with disc feed for can making—is used by these canners for seaming cans 2⅛"—4¼" in diameter at speeds up to 500 cans per minute. Also available with disc type can feed for can manufacturing use only.

Canners and can makers the world over need...even demand the ultimate in simplified, rugged, efficient design. These demands are met by Angelus...the nation's only manufacturer exclusively producing automatic can closing machines.

Angelus seamers, backed by over 45 years of experience, are rugged and dependable; they are simple to operate and maintain; they represent the lowest possible initial investment.

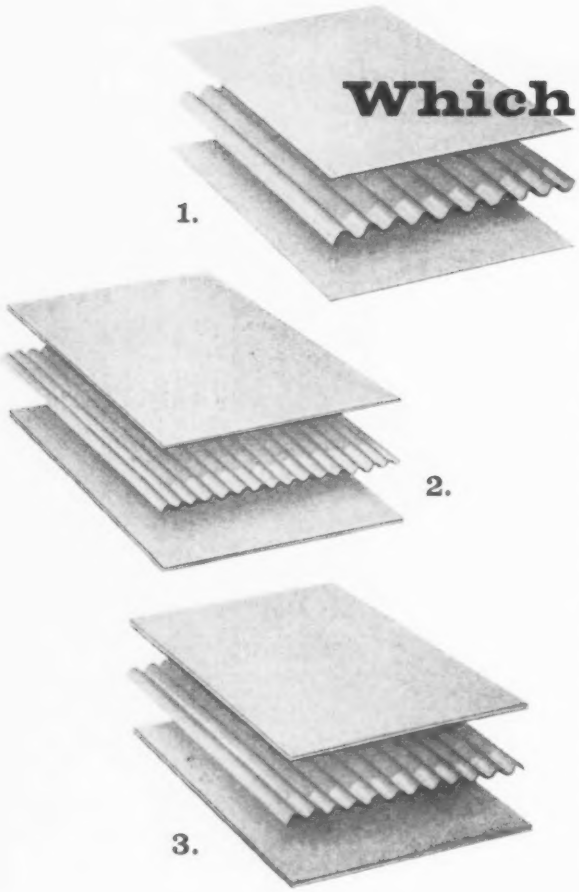
WRITE TODAY for complete details. Specify products, can dimensions and your capacity requirements.

ANGELUS
Sanitary Can Machine Company
Cable Address "Angelmaco" Western Union Code
4900 Pacific Boulevard • Los Angeles 58, Calif.

For more data, circle 259 on Reader Service Card

What you should know about

Which combination for



1. "A"-flute board
2. "B"-flute board
3. "C"-flute board

Think of the "sandwich" of corrugated as the built-up layers of board that fold to form your shipping container.

In double-faced board, its most widely used form today, this "sandwich" consists of one sheet of corrugated medium glued between an outer and an inner liner. But there are many combinations depending on the degree of protection required. Different types of flutes ("A", "B" and "C"). Different weights or thicknesses of liners.

Which combination to pick depends primarily on your product. For example, how large is it? How heavy . . . durable? How is it normally shipped?

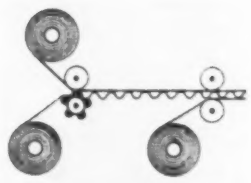
Union Box structural engineers will be glad to make such a product analysis for you and help plan your shipping container for greatest efficiency and economy.

Combining the board

The combination determined, rolls of corrugating medium and linerboard are placed on the corrugator. Here, steel "teeth" form the flutes, arching each one uniformly. The inner and outer facings are then applied.

combined board for Union Boxes

your corrugated box "sandwich"?



Board components

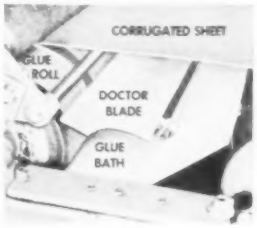
For extra-durable cushioning, Union's KEMKOR corrugating medium, made by the semichemical process, is normally specified. KEMKOR is a product of hardwood whose short, tough fibers combine remarkable rigidity with good load-bearing properties.

Making it stick

Adhering the inner and outer facings to the flutes are critical sheetmaking operations. *Pressures*, for example, must be sufficiently heavy to insure a durable permanent bond. Not so heavy as to crush and weaken the structure.

Then there's the *quantity* of adhesive used. Not enough results in a defective, prone-to-peel-apart sheet. Too much causes a "washboard" appearance and means that in order to achieve good printing some crushing of the flutes will occur. This crushing, while not always apparent to the eye, does reduce the overall strength of the box.

Even the amount of *heat* applied to the board can spell the difference between a strong "sandwich" and an unstable one. Adjusting heat to the *gel-characteristics* of the adhesive requires a fine balance. Too much heat prevents the glue from penetrating the board's fibers and causes a crystalline layer that breaks easily under stress. Insufficient heat allows the glue to "bite" but doesn't cook it enough to cause gellation and incomplete adhesion results. That's why it's essential that heat be accurately set for glue characteristics and machine speed as well as for the weight of board being run.



Glued for good

These controlled processes are typical of the detail that goes into every operation of Union Box manufacture. They save time and expense during handling, filling and loading. They provide the surest kind of protective insurance for your product and your overall shipping investment.

Write for new, informative booklet, "Manufacturing Sheets for Corrugated Boxes."

union camp

UNION BOXES

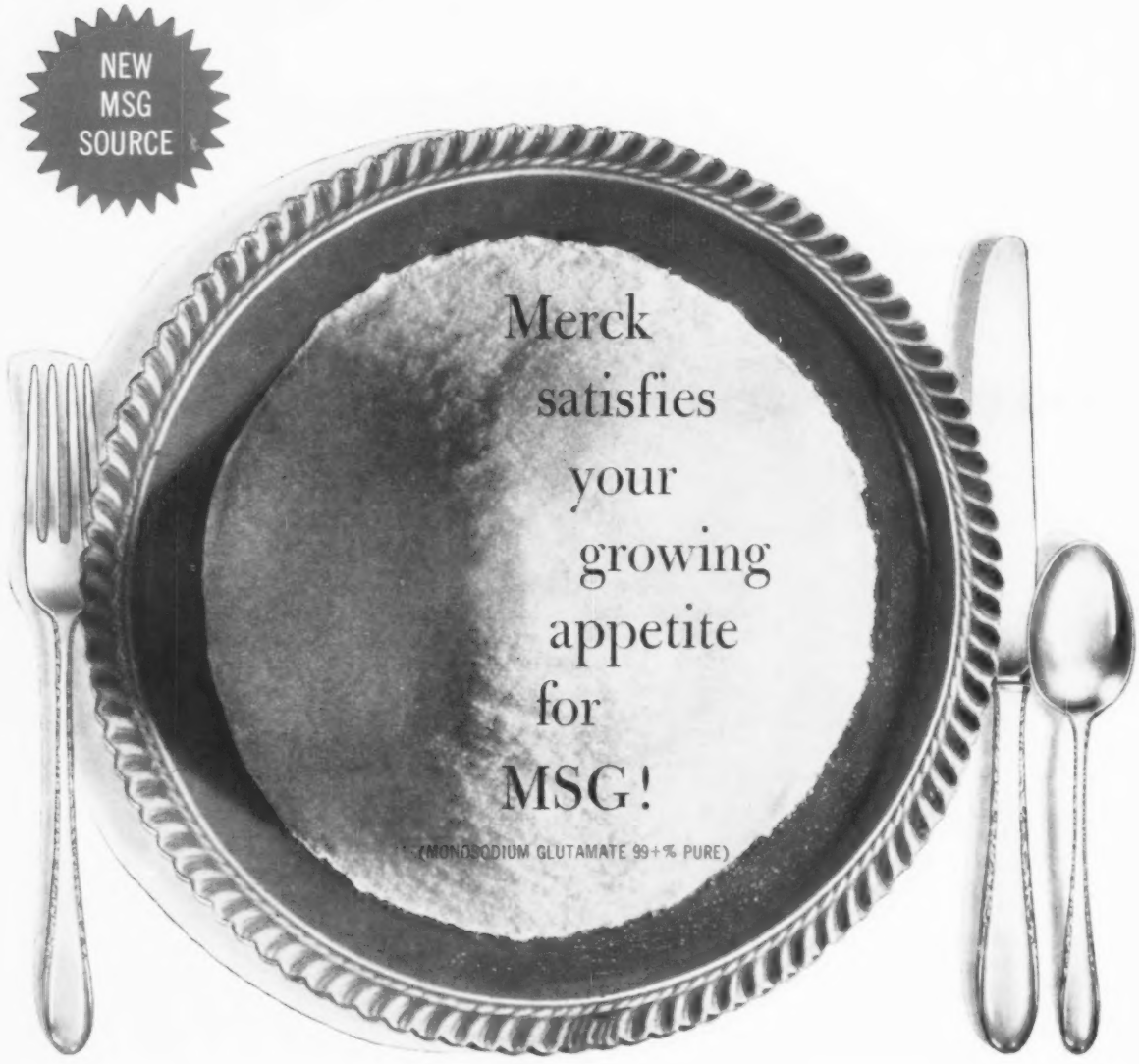
UNION BAG-CAMP PAPER Corporation

233 BROADWAY, NEW YORK 7, N. Y.

Factories: *Savannah, Ga., Trenton, N. J., Chicago, Ill., Lakeland, Fla.*

Sales Offices: *Eastern Division—1400 E. State Street, Trenton, N.J.*
Southern Division—P.O. Box 570, Savannah, Ga.; P.O. Box 454, Lakeland, Fla.
Western Division—4545 W. Palmer, Chicago, Ill.

For more data, circle 260 on Reader Service Card



1. Merck is your new basic source of supply for MSG. Recently completed Merck production facilities with multimillion pound MSG capacity can satisfy even the healthiest appetite for this important flavor-enhancing ingredient.

2. You can depend on Merck for unlimited quantities of MSG because the unique and technically advanced fermentation process utilizes raw materials which are available in unlimited supply. No other Merck product or process competes for this supply.

3. Like all Merck food processing ingredients, the quality of Merck MSG is unsurpassed. It meets the highest quality-control standards for monosodium glutamate 99+% pure.

4. Merck MSG is available in two forms—Crystals and Fine Crystals—to fit your requirements. It is packaged in 100-lb., 50-lb., and 10-lb. containers.

5. Merck MSG deliveries are fast, since distribution centers are strategically located from coast to coast.

6. The Merck Food Research and Technical Laboratories are fully staffed and ready to serve you. Technical assistance, including MSG assay service, is available on request.

7. Ask your Merck representative for complete information about Merck MSG or write directly to:

MERCK & CO., INC.
RAHWAY, NEW JERSEY

© Merck & Co., Inc.

Check of New Laws . . . Bills That Died

Fate of a host of industry-pertinent measures that had long hung fire finally came clear late last month after Congress staged its last-minute rush on bills prior to adjournment.

When the shooting was over, more than half the matters grappled with down the months were resolved and moved through to enactment.

The other half had fallen into one or another category of the casualty column.

Measures Put Through

▲ **Food Additives:** Compromise bill (detailed FE Aug., p. 17) passed after amendment requiring specific anti-cancer finding in manufacturers' safety tests.

Neither industry nor FDA liked idea of singling out cancer among possible health risks. But this change got nod in deal that won support of Rep. Delaney (Dem., N. Y.), who'd otherwise threatened to block bill in House Rules Committee.

▲ **FDA's Budget:** Went through at $9.8 million figure—up $500,000 from last year. Outfitting of new regional offices in Detroit and Dallas will take prime portion of extra money.

▲ **FTC-USDA Meat Jurisdiction:** The House bill—assigning only retailing authority to FTC and leaving wholesaling to USDA—was finally approved and sent to the President. This measure was narrower than the Senate's version, which called for dividing the jurisdiction between the two bodies.

▲ **Trade Agreements Act:** Extended 4 yr. (until mid-1962), with President authorized to reduce tariffs as much as 20%. But delay in European action means you needn't look for such cuts prior to '62. Any actions before then are more likely to be tariff increases, because the new law widens portal for U. S. concerns seeking restrictions against competing imports. Further, a two-thirds vote by Congress can now over-ride rejections by the President of Tariff Commission recommendations. Also, new law makes it easier to slap on punitive duties in anti-dumping cases.

▲ **Small-Business Tax Relief:** Faster write-off allows added 20% taxable-income deduction on cost of new (but not used) capital goods in first year. However, this applies only on purchases up to $10,000 ($20,000 in joint return). Further: Estate taxes may now be paid over 10 yr. rather than one lump. Current business losses may be carried back 3 yr. rather than 2. And stock investment losses in small enterprises may be deducted from ordinary income.

▲ **Humane Slaughter:** Bill passed with exemption of Jewish and other religious ritual slaughtering. It bars, after mid-'60, any Federal-Agency buying of meat from plants that don't comply. Code calls for making animals insensible to pain by single blow or gunshot, or chemical or electrical means.

No punishment is provided for offenders. But efforts to broaden the legislation are expected in January.

There was apposition by American Meat Institute, which "sought to avoid the unrealistic and unworkable." Measure as passed is termed "vague and contradictory" by AMI President Davison. But he doesn't find it as undesirable "as some proposals that were advanced," and thinks "proper and reasonable administration could make it workable."

Meanwhile, he sees the Secretary of Agriculture in a "rather difficult position." On the one hand, the Secretary will be pressed by humane groups for specific decisions on slaughter methods. On the other, he must handle matters so meat supplies aren't cut off from the Department of Defense and other agencies.

▲ **Tax Ease on Freight Shipmente:** Congress removed the 3% excise tax.

▲ **Trucking:** Omnibus measure, enacted to aid railroads, ends a number of exemptions from ICC regulation (mainly rates and routes) of shipments by interstate truckers. Included in long list are frozen fruits, berries and vegetables, imported bananas, coffee beans, and cocoa beans.

However, fishery interests retain their exemptions, and under amended law they can truck breaded, cooked, and prepared frozen fish products in mixed loads with other exempt fresh and frozen fish.

Poultry people, too, kept their exemptions when specific reference to poultry was deleted from bill.

▲ **Welfare & Pension Fund Reports:** Primary intention was curb on union excesses. But bill passed effective Jan. 1) requires that all employers (unless under 25 persons covered) report plans, operations, finances, and benefit schedules of such funds.

▲ **Social Security:** As benefits rise, "take" from employer and employee is lifted from 2½% to 2¾%, with base up from $4,200 to $4,800. Effective Jan. 1.

▲ **Crop Price Supports:** Reduced to 65% on corn and rice, opening door to greater output. Wheat and peanut parities (now 75%) seen target by Agriculture Secretary Benson in next Congress.

Casualty List

▲ **Haley Bill:** This House measure sought exemption of fresh produce from FDA chemical-preservative labeling. Later, it was modified more to FDA's liking—but died for lack of Senate action.

▼ **Labor Bill:** Senate-passed Kennedy-Ives labor control bill was killed in House, legislative consensus being that it was "too soft."

▼ **Price Discrimination:** Moves were initiated (Kefauver in Senate) to limit the good faith defense of concerns charged with price discrimination. Senate Judiciary Committee approved a narrow version applicable only to food, drug, and cosmetics, but it didn't reach the floor. And House committee never took up its sister bill.

▼ **Tax Ease on Waste-Treating Units:** Proposed was rapid tax writeoff of companies' outlays for waste-treatment and air-pollution abatement facilities. But there was no further action after preliminaries in House committee last January.

▼ **Farm Cooperative Taxation:** Bills aimed at correction of alleged favoritism in income tax treatment of co-ops. No action since January House-committee meeting. But sponsors intend to open fire again next year.

▼ **Fair Trade Legislation:** Sought was Federal system to replace crumbling state-law setups. Senate subcommittee declared there was need for more hearings. Sister measure in House won subcommittee approval, but full committee didn't act. Thus, next moves await 1959.

DRYNESS

best reason in the world for specifying

genetron®
SUPER-DRY
REFRIGERANTS

In "Genetron" Super-Dry Refrigerants, moisture has been reduced almost to the vanishing point. "Genetron" 12, for example, has less than one-thousandth of one per cent of moisture! And the tight quality "specs" for "Genetrons" are usually *bettered* in production. "Genetron" Super-Dry Refrigerants are available from wholesalers everywhere. So be sure to make your next order—"*Genetron*."

QUICK FACTS on GENETRON Super-Dry Refrigerants

- Guaranteed exceptionally low moisture content.
- Noncorrosive to standard equipment materials, nontoxic, nonflammable, stable, safe.
- Critical and freezing points well outside range of operating uses.
- Solvent action on oil helps prevent solidification or congealing of lubricant; aids in lubrication of equipment; generally miscible with oil.
- Freely interchangeable and may be mixed in any proportions with comparable fluorinated hydrocarbons meeting the same strict refrigerant specifications.
- Available everywhere, from refrigeration wholesalers throughout the country.

GENETRON 11 ORANGE LABEL CCl_3F
Trichloromonofluoromethane

GENETRON 12 WHITE LABEL CCl_2F_2
Dichlorodifluoromethane

GENETRON 22 GREEN LABEL $CHClF_2$
Monochlorodifluoromethane

GENETRON 113 PURPLE LABEL $C_2Cl_3F_3$
Trichlorotrifluoroethane

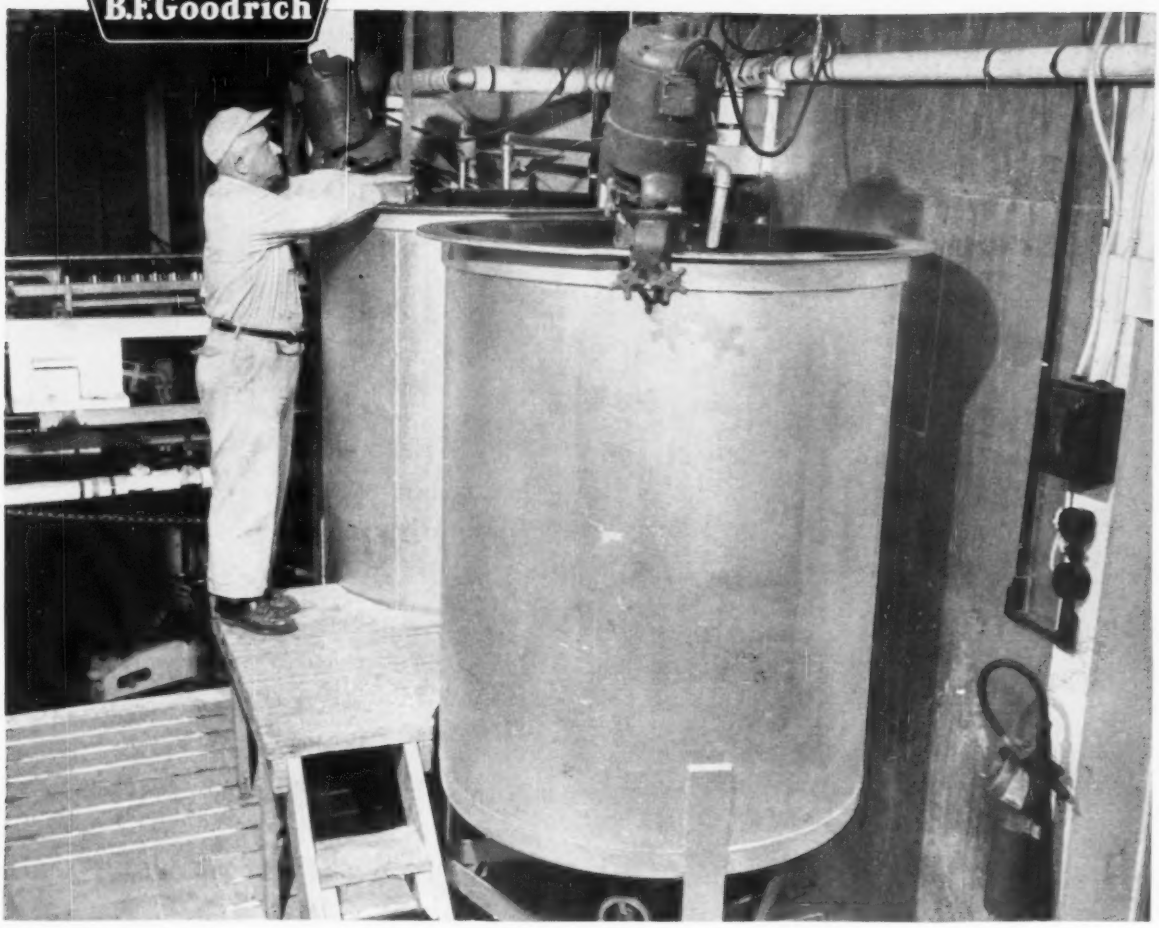
GENETRON 114a BLUE LABEL $C_2Cl_2F_4$
Dichlorotetrafluoroethane

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

LET THE MAN WHO OWNS ONE TELL YOU

B.F.Goodrich



Brine gnaws holes in steel but can't eat through rubber

B.F.Goodrich improvements in rubber brought extra savings

Problem: Those tanks each hold 400 gallons of brine, used in processing canned onions. The solution is hot, and so corrosive it ate holes through welds in stainless steel tanks after only two months. It kept maintenance crews hopping—patching leaks, cleaning floors. Six months, and 75 patched holes later, both tanks had to be replaced.

What was done: At this point, a B.F. Goodrich man recommended lining the steel tanks with B.F.Goodrich "Saniprene". This is a hard rubber tank lining that's acid-resisting, does not contaminate food products. The rubber lining is locked to tank walls so tightly it practically becomes a part of the metal.

Savings: The two tanks, lined with 3/16" Saniprene rubber, have been in service over a year now, are still in excellent condition. There have been no leaks, no patching needed of the rubber or the metal. Engineers at the packing company expect the B.F.Goodrich lined tanks to last many, many times the 6-month life span of the unlined metal tanks.

Why specify B.F.Goodrich: If the waste and hazard of leaking acid tanks is a problem in your plant, call in B.F. Goodrich. You'll get the benefit of specialists who created the science of rubber lining and have had more experience in it than anyone else. You can be sure that the type of lining B.F. Goodrich recommends, produces and installs for you will put an end to messy leaks, costly repairs, expensive tank replacements. For more information, write *B.F.Goodrich Industrial Products Company, Dept. M-422, Akron 18, Ohio or to our plant in Tuscaloosa, Alabama.*

B.F.Goodrich *rubber-lined tanks*

◄—For more data, circle 262 on Reader Service Card

For more data, circle 263 on Reader Service Card

LET THE MAN WHO OWNS ONE TELL YOU...

Why He Chose

VERTI-PAK

Mr. Seymour Klinghoffer
Vice President
GARDEN FRESH VEGETABLE PACKING CO.

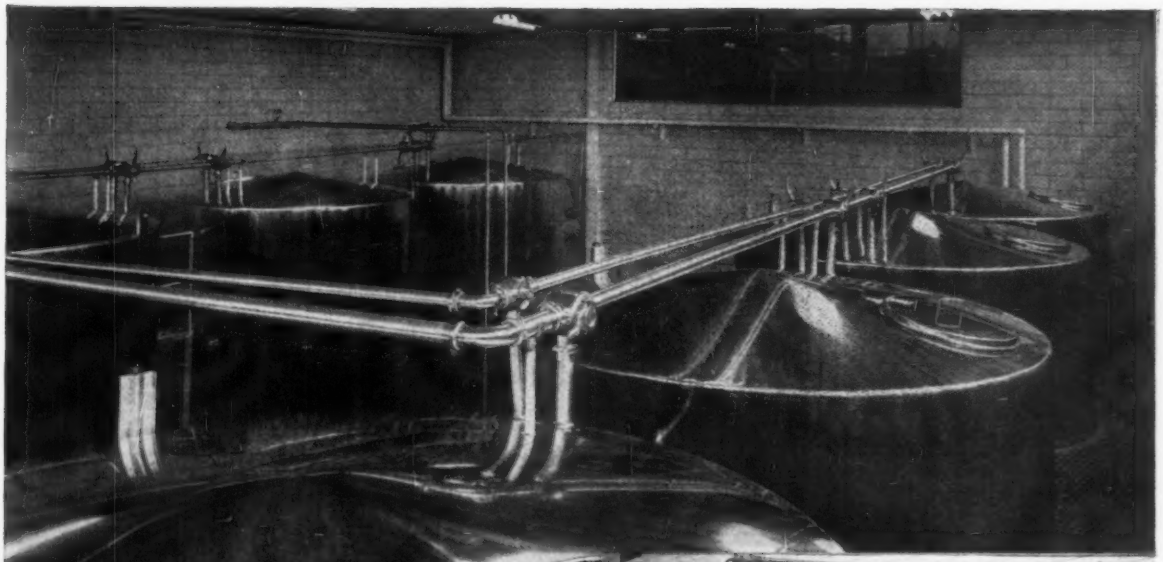
Exclusive VERTI-PAK Features:

- Forms, weighs, fills, seals up to 45 packages per minute!
- Fully automatic operation!
- Easily adjustable for variable bag sizes and materials!
- Reduces labor costs!
- Compact, space saving!
- Economical! Pays for itself in savings!

In the selection of a packaging machine, Verti-Pak won hands down for this leading food packing company! "It runs like a swiss clock," says Mr. Klinghoffer, "providing consistent weight accuracy, better sealing and rapid change-over on bag lengths. Verti-Pak has saved us 20% on materials, stopped bag pilferage and reduced labor costs by 75%." About Verti-Pak's compact design, he added, "by eliminating separate conveyor tables and heat sealers, we have almost doubled our working space."

MERCURY **Heat Sealing Equipment Co.**
2601 N. HOWARD ST.
Philadelphia 33, Pa.

For more data, circle 264 on Reader Service Card



TRI-CLOVER
Fittings and Valves

help maintain product purity for PEPSI-COLA GENERAL BOTTLERS, INC.

Pepsi-Cola General Bottlers, Inc. does an excellent job of keeping up with the demand for their quality product in the big Chicago metropolitan area. Behind the scenes of this large-scale, progressive bottling operation is an impressive array of the most modern equipment and machines.

In keeping with their strict sanitary conditions, a large number of Tri-Clover Division sparkling-clean stainless steel fittings and valves are used in this efficient Pepsi-Cola plant. Most of these are of the exclusive "Tri-Clamp"® design, which permits fast assembly, and provides for fast, easy "in-place" cleaning.

This modern installation serves as another good example of the way in which Tri-Clover fittings and valves serve leading bottlers throughout the country.

See your nearest Tri-Clover Distributor

Shown directly above is just part of the equipment serving the Pepsi-Cola bottling operations in the new Chicago plant. Tri-Clover "standard" type and "Tri-Clamp" fittings and valves are used on this mixing and cooling equipment.

The large view, above, shows some of the Tri-Clover "Tri-Clamp" fittings and valves used to "streamline" liquid conveying operations in and out of the Pepsi-Cola syrup tanks.

LADISH CO.
Tri-Clover Division
Kenosha Wisconsin

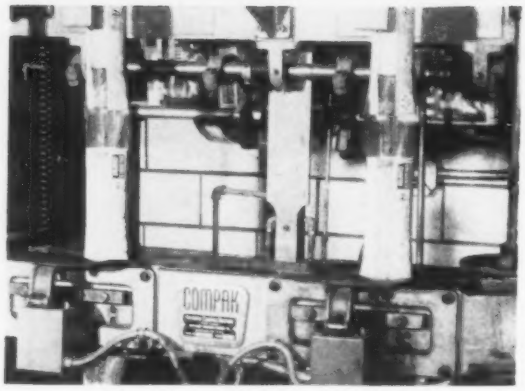
In Canada: BRANTFORD, ONTARIO

TRI-CLOVER

Export Dept.: 8 So. Michigan Ave., Chicago, U.S.A. (Cable) TRICLO

S-458

For more data, circle 265 on Reader Service Card



Doubles Output with Film, Machine

Polyethylene film and a new high-speed automatic packaging machine have spelled out a 100% boost in production for Princeton Farm, Inc., marketers of popping corn.

The film was selected for its moisture retention, strength, and visual appeal. An automated production line was achieved with electronically-controlled packaging machinery by Hayssen Mfg. Co.

Use of the film has increased the popping corn shelf life 5-6 times.

Circle 1 on Reader Service Card

Frozen Clams Switch to Foil

Quick-frozen fried clams are now on the market in New England, New York, and Pennsylvania. Made by H. J. Seiler Co., Boston, the products are packaged in a new heat-and-serve aluminum pan with a bright five-color lid.

The pan replaces a plastic basket with cellophane printed overwrap. Main advantages over the old package are better product protection and wider label areas.

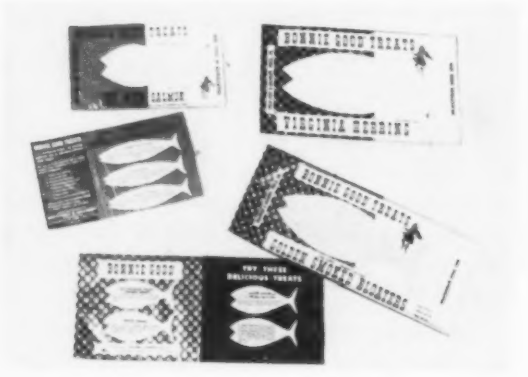
Pan lids are lithographed by Lord Baltimore Press, New York City. Circle 2 on Reader Service Card

Multi-Pack for King Sized Cans

A 4-unit Can-Trak is being tested on 16-oz. beer cans of Schaefer Brewing Co., New York City. Made by Continental Can Co.'s Boxboard and Carton Div., the carrier covers only 1 in. of the can's label surface.

The 4-pack is a natural for mass display. The carrier fits snugly and securely over the can tops, offering a flat surface for stacking. Printing on the carrier mirrors the motif set on the cans themselves.

Cans are hand loaded into the carrier for this test. Automatic packing can be achieved with Continental's Jak-Et-Pak-50, a new compact and flexible multiple packaging machine. Circle 3 on Reader Service Card

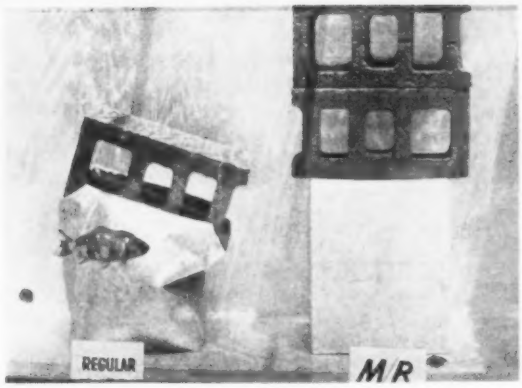


New Packages Expand Markets

A switch from bulk packs to attractive unit pouches is scoring sales for Belovsky and Granoff's Bonnie Good fish products. The change marks the processor's swing from limited delicatessen sales to supermarket distribution.

The neat and colorful pouches rack up these advantages: longer in-store life, ease and cleanliness in handling, and stronger visual appeal. Portions are 4 oz.-1 lb. and include trout, salmon, cod, and whitefish.

Made by Standard Packaging Corp., the packages are made of a special film combination, printed by flexography in 4 or 5 colors. Circle 4 on Reader Service Card



Board Resists Water Damage

Inquisitive fishes shown above are inspecting a unique way of demonstrating the advantages of Hinde & Dauch's new M/R corrugated board. Designed for fresh fruit and produce packing where hydro-cooling and top ice packing are employed, the board has high resistance to the destructive influence of water.

Hydro-cooled peaches from Sunny Slope Farms, South Carolina, are the first to be shipped commercially in corrugated boxes made by the new process. No water-repellant coatings are used.

Cartons may be printed. Circle 5 on Reader Service Card

Pre-Ground Coffee in Bags

Pre-ground, bag-packaged Gaylord and Mello-Sip coffees have been introduced by Topco Assoc., Chicago distributors of quality grocery products to 31 regional chains.

The bags, pliofilm lined and heat sealed, are dated to be moved within two weeks after grinding. The packaging is reported to retain "the distinct economy of bag packages, yet does away with the drawbacks of in-store grinding."

Both new packages were designed by Morton Goldsholl Design Assoc., Chicago.

"Heatable" Package for Bread

A novel bread package is gaining popularity in Jacksonville, Fla. Setzer's Bakery is using a foil-paper laminate bag to package its extra-long loaves. The bags can be used to heat the bread on an outdoor grill or in the oven.

Recipes for garlic and cheese bread are printed on the bag along with brand identification. Since a simple fold closes the bag, they have a re-use appeal for the consumer as freezer bags or lunch bags.

Bags are manufactured by Columbia Paper Products Co., Baltimore, with aluminum foil provided by Reynolds Metals Co. Circle 6 on Reader Service Card

Dispenser Spurs Product Sales

Taylor-Reed Corp., Glenbrook, Conn., is stimulating sales of its Cocoa-Marsh with a handy new "soda fountain dispenser." The pump is engineered so that it won't clog and is designed for long use.

Sold as a premium for 25¢, the pump is made of white vinyl plastic that can be washed easily. It replaces the standard closure on the 1½ lb. jar and simplifies dispensing. The product is mixed with milk to make a chocolate drink, or may be used undiluted as a dessert sauce. It is fortified with iron and Vitamin D.

Pumps are manufactured for the processor by Calmar Co., Los Angeles.

CUT COSTS!
SAVE SPACE!
SAVE TIME!
with the
NESTAWAY
SYSTEM

The only
COMPLETE ONE-UNIT
SYSTEM for handling
Bread and Baked Goods
from the wrapper to the
consumer.

For years bakery engineers have sought the perfect baked goods handling system. Now, Mid-West, with its amazing Nestaway System, brings the search to an end. Nestaway offers the lowest cost for delivery of bread and baked goods from the wrapper to the consumer. Nestaway takes up less space than any other handling method. No other system makes handling as quick and easy as Nestaway. Nestaway is fully covered by U.S. and Canadian patents.

Write today for FREE Brochure

MWM
NESTAWAY
"Engineered Material Handling Systems"
MATERIAL HANDLING DIVISION
MID-WEST METALLIC PRODUCTS, Inc.
450 FILM Bldg. - CLEVELAND 14, OHIO

New Packages & Products

BARREL-SHAPED 1-qt. jar adds merchandising appeal to Crown Foods' sauerkraut. The clear sculptured glass is decorated with a front label. Jar supplier is Hazel-Atlas Glass Division of Continental Can Co.

Circle 7 on Reader Service Card

Packaging Briefs

Metal Pouring Spout has been added to Nabisco's 100% Bran. Spout is now on the 1 lb. package and will soon be placed on the 10 oz. size.

10% Sales Boost of American blue cheese marketed by Godfrey Co., Milwaukee is attributed to packaging 6 lb. wheel with individually wrapped 4-6 oz. wedges.

Vacuum-Packed key-opening cans are now used to package 10 oz. portions of Charms. The hard candies are also sold in a conventional foil and paper wrap.

Flat-Top Cans have been adopted by D. G. Yuengling & Son, Pottsville, Pa., for its beer.

To Add 7 Frozens

A recent Seabrook Farm sales conference was the scene for the debut of seven new frozen prepared vegetables in Mylar.

The additions to the Seabrook line are Delmonico potatoes, potatoes and peas in cream sauce, asparagus cuts and tips Hollandaise style, chopped broccoli au gratin, creole succatash, creamed spinach, and lima beans in cheese sauce.

All of the products were successfully test marketed in Toledo.

Packs Shortening in Drums

Fiber drums with sanitary polyethylene linings are now used by Armour and Co. to package lard and shortening for shipment to bakers. Designed specifically for this purpose, the drums hold 400 lb. Uniform size makes storage simple, particularly since the drums can be stacked atop one another without pallets.

A lever-locking device simplifies opening and reclosure. The low drums make handy dispensers. In addition, there is a re-use value after the initial contents have been expended.

Drums are manufactured by Fibre Drum & Corrugated Box Div. of Continental Can Co.

Circle 8 on Reader Service Card

Introduces Fruit Beverage

A fruit-flavored non-cola drink called Fanta, will soon reach the market. Processed by Coca-Cola Bottling Plants in San Francisco, Boston and Chicago, the beverage will be available in five flavors: orange, lemon, lime, root beer and ginger ale.

Marketing is being done on a test basis. Tests have been continuing for the past two years.

New Product Shorts

Good News for Baby is the national distribution of Swift & Co.'s High Meat Dinners.

Cocoa Puffs are newest Betty Crocker ready-to-eat cereal. Product is made of puffed corn, blended with cocoa, and frosted with sugar.

Boneless Turkey Roll has been added to the institutional line of Hayden House Foods Co., Chicago.

Powdered instant cream whip called Dream Whip will be moved into national distribution by General Foods.

Precooked Canned Rice called Insta Rice is being tested by Agricultural Marketing Service.

All-Beef Breakfast Sausage is now sold by Home Packing Co., Denver.

Whipped Potatoes, frozen and concentrated, are being introduced in selected areas by Birds Eye.

Four exclusives for baby are Gerber Products' turkey with vegetables, junior bananas with pineapple, strained vegetables and turkey, and junior turkey with vegetables.

General Mills has a reason...

Delicate egg whites in this new Betty Crocker Meringue Mix require special packaging protection. That's why General Mills turned to Riegel for development of a superior, *engineered* packaging material. The result: a Riegel tailor-made Poly laminated Pouchpak* with extremely high protection against odor and moisture transmission, and a good balance of strength and pliability.

Like General Mills, you too can count on the extra benefits of protection by *Riegel*: Product protection always, *plus* flexible packaging materials that are:

... tailored to run at high speeds on automatic machines

... made to your own specifications; printed, waxed, coated, and laminated combinations of all types

... priced to give the best possible protection at the lowest unit cost

Hundreds of today's best-sellers benefit from Riegel's uniformly effective system of product protection. You can too. Write Riegel Paper Corporation, 260 Madison Avenue, New York 16, N. Y.

Riegel

PROTECTIVE PACKAGING MATERIALS

Betty Crocker Meringue Mix is packaged in a special Riegel Pouchpak consisting of printed pouch paper Poly laminated to foil. Packaged at high speed on Bartelt equipment.* *TM

For more data, circle 267 on Reader Service Card

Emery

WEIGHING SYSTEM

BIN, TANK AND HOPPER EDITION No. 10

Covering design, development and application data on Emery Weighing Systems for industrial applications.

ANNOUNCING THE NEW WAY-PAC* LINE OF LOW-CAPACITY LOW-PRICE PACKAGED SYSTEMS FOR TANK WEIGHING

SIMPLICITY OF SELECTION AND OPERATION IS KEY FEATURE OF SUPPLEMENTARY LINE

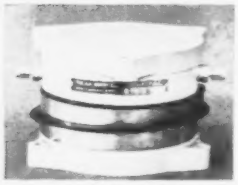


FIG. 1 TYPE AC-1 CELL COMPRESSION.

FIG. 2 TYPE AC-1 "ROLLING-BALL" CELL.

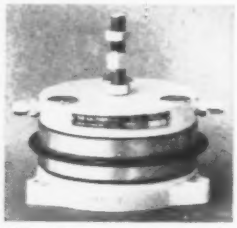


FIG. 3 TYPE AD-1 CELL DYNAMOMETER.

FIG. 4 TYPE AT-1 CELL TENSION.

FIG. 5 TYPE AU-1 CELL TENSION.

The WAY-PAC, a new line of Emery low-capacity, low price packaged hydraulic tank weighing systems, designed specifically for the 0 to 1000 lb. range, is now being offered to the process industries.

The accuracy of the WAY-PAC cells is ¼ of 1% of range. This extreme accuracy depends upon two significant design features . . . a moulded rubber diaphragm which maintains a constant acting area and a rolling ball assembly which performs the dual function of practically eliminating friction in the "piston-cylinder" assembly as well as preventing deleterious pinching of the diaphragm in the event of cross loading.

Five different cell types are available in the WAY-PAC line, each designed to perform with typical Emery excellence under different sets of operating conditions. (See Figs. 1 to 5).

The cells are manufactured of aluminum and a top grade bar stock steel to eliminate any possible leakage of the film of oil sealed in the diaphragm.

Unique design features, coupled with the ultimate in manufacturing craftsmanship, have produced in the WAY-PAC line equipment capable of long service life with extreme accuracy under the most rigorous conditions.

A complete line of related equipment is available including: tank pivots, strut assemblies, indicators and recorders. Although controlling and printing equipment can be supplied with and can be operated from the WAY-PAC cells, it is desirable that our engineers know the details of the installation in order to make a recommendation.

*Trademark

Moulded Rubber Diaphragm Gives Constant Acting Area

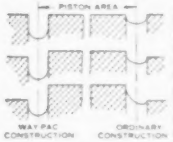


FIG. 7

The moulded rubber diaphragm used in the WAY-PAC cells possesses a unique "rolling action" which imparts constant acting area to the cell. This "rolling action" is illustrated in Fig. 7.

Because of this constant "rolling action", the Emery WAY-PAC load cell is extremely and consistently accurate.

Exclusive "Rolling Ball" Head Available in WAY-PAC LINE

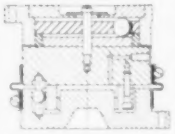


FIG. 6 CROSS SECTION OF "ROLLING-BALL" CELL.

To prevent damage from possible crosswise movement of the tank, bin, hopper or structure being weighed, we have incorporated into the WAY-PAC cell line the exclusive Emery "rolling ball" head.

In essence, the WAY-PAC "rolling ball" head consists of three ½" diameter stainless steel balls built into the top platen of the cell, riding top and bottom on hardened steel plates. (See Fig. 6). In operation, any crosswise movement, such as that incurred in the expansion and contraction of the structure being weighed, rides on the stainless steel balls and is transmitted through them to the diaphragm.

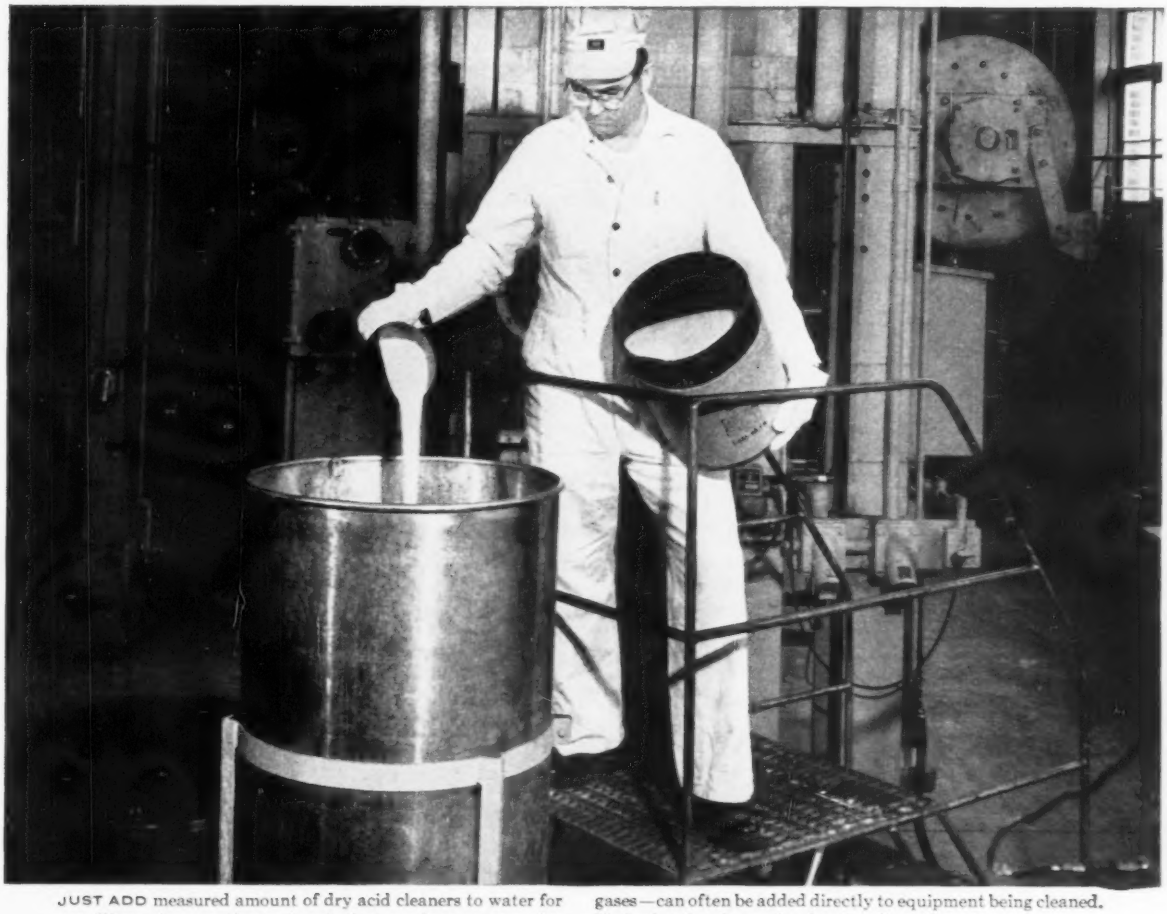
Load cells which do not take expansion and contraction into consideration are not properly designed and cannot compare with the WAY-PAC.

NEW WAY-PAC BULLETIN 582 AVAILABLE FOR DISTRIBUTION

Our new Bulletin 582 which describes in detail the Emery WAY-PAC line and provides an easy-to-use method of figuring your system costs is now off the press. Send for your copy right away.

THE A. H. EMERY COMPANY

Pine Street • New Canaan, Conn.



JUST ADD measured amount of dry acid cleaners to water for use. These cleaners (dry or in solution) produce no corrosive gases—can often be added directly to equipment being cleaned. No broken bottles, no hard-to-handle carboys to return.

For safer, easier equipment cleaning . . .

DRY ACID CLEANERS

based on Du Pont Sulfamic Acid

New cleaning compounds made with sulfamic acid are sold and handled *dry*—no hazardous liquids to ship or store. Dry or dissolved in water for use, they create no fumes. Yet these cleaners have all the penetrating power of hydrochloric acid with far less corrosive effect.

Sulfamic acid-based cleaners remove hard water scale and other mineral deposits from industrial equipment such as air-conditioning and ice-making units, food-processing vessels, steam boilers, milk evaporators and pasteurizers, bottle-washing machines, marine evaporators and heat exchangers. Cleaning action is fast, thorough.

We'll gladly send you more information about sulfamic acid-based cleaners and the names of formulators who offer these new compounds. Mail coupon today. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Room N-2533, Wilmington 98, Delaware.

SULFAMIC ACID

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Rm. N-2533FE
Wilmington 98, Delaware

Please send me ☐ free booklet about sulfamic acid-based cleaners, ☐ names of formulators offering these new compounds.

Name_____

Firm_____ Title_____

Address_____

City_____ State_____

For more data, circle 269 on Reader Service Card

How to beat the high cost of temperature control

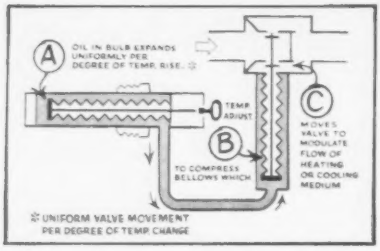
The practical approach to temperature control

By John W. Ritter, Test Engineer, SARCO Company, Inc.

Precise temperature regulation is essential in many processing operations, not only for quality control, but for maintenance of output as well.

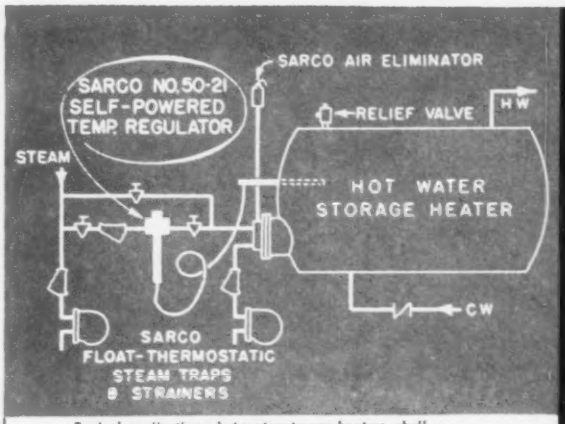
Manual temperature control is unsatisfactory because of the possibility of spoilage and loss of quality control which can result from irregular or indifferent hand regulation.

Automatic controls are available in a wide variety, including pneumatic, electronic, and self-powered. Pneumatic and electronic controls are relatively expensive to purchase and install, and may require frequent maintenance. However, in most applications, control requirements can be achieved very successfully by the use of relatively simple, economical Sarco Self-powered Regulators.


A
OIL IN BULB EXPANDS UNIFORMLY PER DEGREE OF TEMP. RISE.*
TEMP. ADJUST
B
TO COMPRESS BELLOWS WHICH
C
MOVES VALVE TO MODULATE FLOW OF HEATING OR COOLING MEDIUM
*UNIFORM VALVE MOVEMENT PER DEGREE OF TEMP. CHANGE

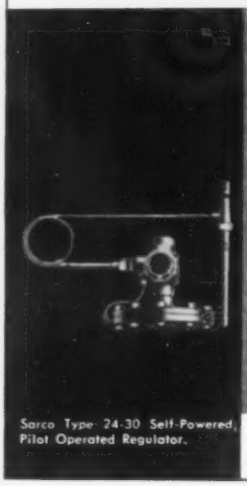
This drawing shows simplicity of operation of the Sarco 50-21 Temperature Regulator, which consists of a thermostat, capillary tubing, and a valve.

Sarco controls, like the 50-21 and the 24-30, have the required degree of sensitivity and dependability, combined with the ruggedness inherent in the sealed capillary tube construction. Because these Sarco controls do not depend on external power, such as electricity or compressed air, they have established long records of sustained, reliable operation. They are an economical and practical solution to the problem of maintaining continuous watchdog duty over processing temperatures.

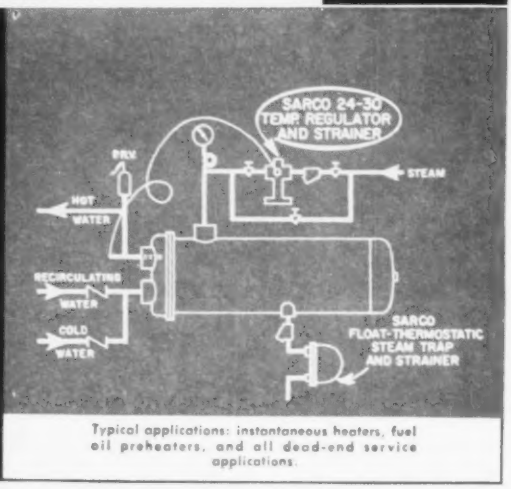


Typical applications: hot water storage heaters, shell and tube heat exchangers, condensers, oil storage tanks, dryers, kilns, etc.

Sarco Type 50-21 Self-Powered Regulator.



Sarco Type 24-30 Self-Powered, Pilot Operated Regulator.



Typical applications: instantaneous heaters, fuel oil preheaters, and all dead-end service applications.

Self-powered automatic temperature regulators by SARCO . . .

have these 5 marked advantages: No compressed air or electrical wiring required. No delicate mechanisms to adjust or maintain. No packing glands to stick or require maintenance. No shutdown during power failure. No specialized maintenance required.

Sarco Self-Powered Controls are self-contained and can be installed by any pipe fitter. They are so reasonable in cost that you can afford Sarco automatic heating controls for every application in your plant. Write for 10-page Sarco Control Bulletin No. 620.

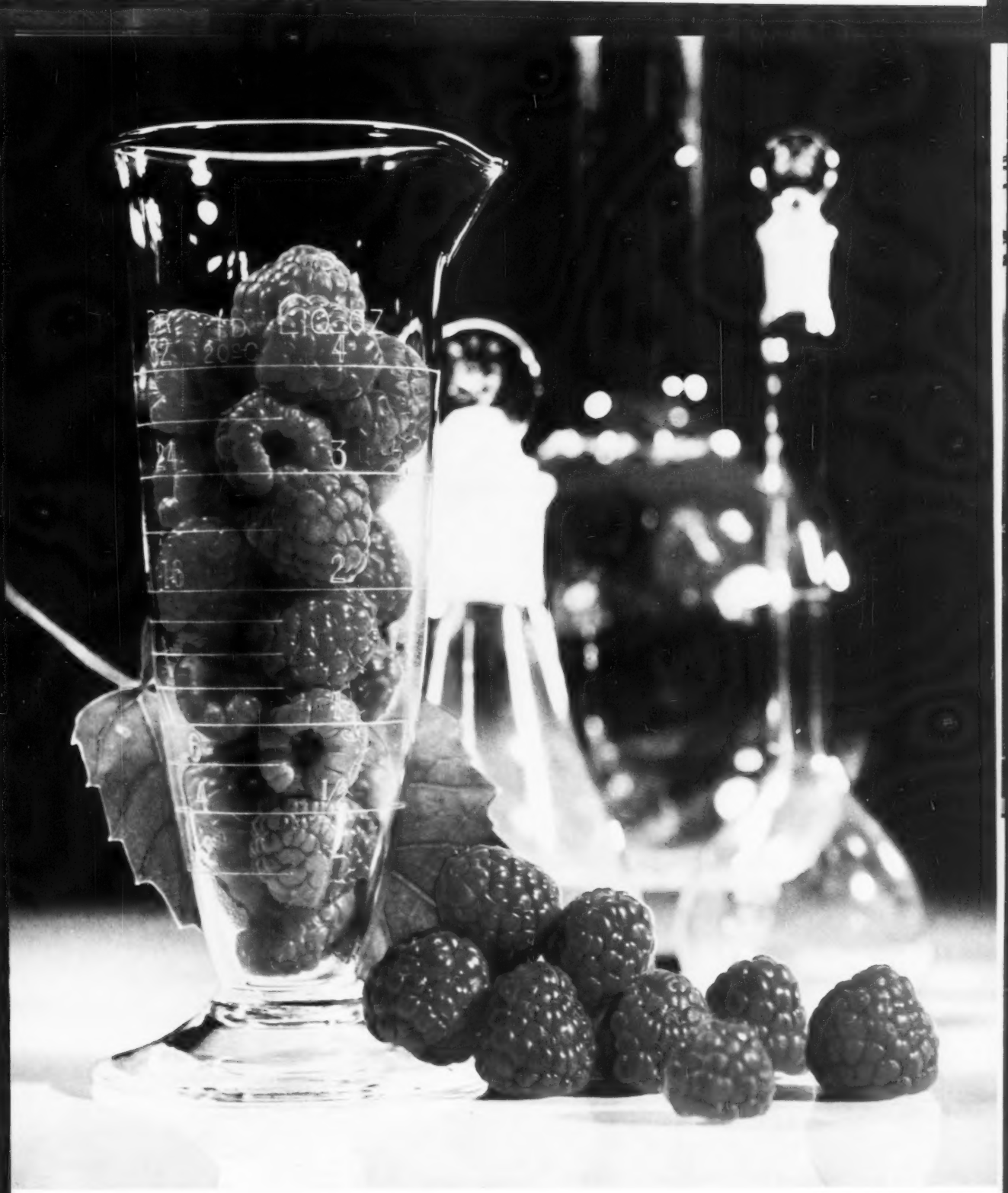
6346-B

SARCO
COMPANY, INC.
635 Madison Ave., New York 22, N. Y.

STEAM TRAPS • TEMPERATURE CONTROLLERS • STRAINERS • HEATING SPECIALTIES

For more data, circle 270 on Reader Service Card

For more data, circle 271 on Reader Service Card



IMITATION RASPBERRY BY FIRMENICH

You get the direct and authentic reproduction of raspberries in their full perfection in Raspberry Flavor by Firmenich. For Firmenich took fully ripe raspberries, freshly severed from the stem, captured their delicate and fugitive flavor, and by original research reconstructed it with all its significant and desirable components. Firmenich Raspberry comes to you as a precise and potent flavor material of the utmost purity and stability to enhance the flavor of your products and to give them greater sales appeal. Samples and technical data on request.

FIRMENICH & CIE
SUCCESSEURS DE
CHUIT, NAEF & CIE.
GENEVE SUISSE

FIRMENICH INCORPORATED

REDLER*

CONVEYORS-ELEVATORS

For safest, gentlest handling of your bulk materials... en masse!

Horizontal, double run REDLER Conveyor-Elevator handles 15 cubic feet per minute of resinous chips for a southern paper company.

Two inclined 17" REDLER Conveyors carry wood chips to six storage silos. Complete weather protection is afforded by steel casings.

DRAWING OF L-TYPE REDLER CONVEYOR-ELEVATOR

*The REDLER Conveyor is an exclusive STEPHENS-ADAMSON product

STEPHENS-ADAMSON

THE BIG NAME IN BULK MATERIAL HANDLING EQUIPMENT

The REDLER Conveyor-Elevator is one of the most remarkable bulk materials handling machines ever built. It will move practically any pulverized, granular, small lump, or flaky material around corners, over vertical, inclined, or horizontal planes. Material moves forward in a compact column within a totally enclosed, dust-tight casing which virtually eliminates explosion hazards. Material is moved by means of closely spaced skeleton type flights linked together and moving through the casings. Material flows forward in a compact column. A very useful feature of the REDLER Conveyor is its ability to discharge material at multiple points. Arranged as a horizontal closed-circuit unit, the REDLER Conveyor will re-circulate materials and is often used in packaging or distributing operations.

Compact REDLER Conveyor-Elevator designs are available in sizes to handle almost any tonnage. They are quickly and economically installed and their rigid box-girder-like casings are practically self-supporting. For complete data on REDLER Conveyors and Elevators, write for catalog 556.

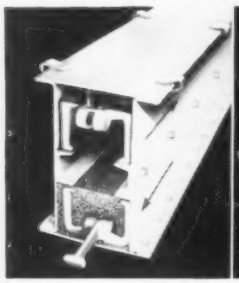
S-A district or main plant offices can supply complete information on any conveyor, product, or any phase of bulk material handling. Request a copy of REDLER catalog 556 for your file.

SINCE 1901 S-A STEPHENS-ADAMSON MFG. CO.

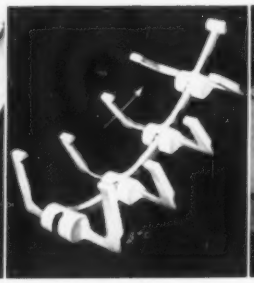
MFG. CO.

MAIN OFFICE AND PLANT
RIDGEWAY AVENUE
AURORA • ILLINOIS

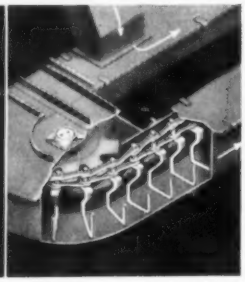
PLANTS LOCATED IN: LOS ANGELES, CALIF. CLARKSDALE, MISS. • BELLEVILLE, ONTARIO



Cross section thru the REDLER Conveyor casing shows material being conveyed in a lower run and the empty flights returning in upper run to complete the circuit. The casing is completely dust-tight, is largely self-supporting and requires very little space.



Exclusive, skeleton type flights linked together to move materials forward in a steady, non-agitated flow. REDLER flights readily curve around corners permitting horizontal and vertical movement of materials with one unit and one drive.



A 180° bend section of REDLER horizontal, closed-circuit conveyor. Sprocket drives side-pull style chain and flights around the bend. Ley bushed type driving chain is supported in a separate trough — no metal to metal contact in conveying chamber.

COMMENTS & QUESTIONS

Observe LPG Standards

Dear Editor:

In your June FOOD ENGINEERING, the answer to a question concerning LPG trucks mentioned that LP-gas is "well-nigh odorless."

I should like to point out the standards of National Fire Protection Assn., Pamphlet 58. Adopted by most states, these standards require that LP-gas be odorized to the extent that it will indicate positively the presence of gas found to a concentration of not over one-fifth of the lower limit of flammability. This amounts to approximately 0.4% concentration.

You are absolutely correct in mentioning that vigorous adherence should be made to safety codes, and it would have assisted greatly by specifying Pamphlet 58, "Standard for the Storage and Handling of Liquefied Petroleum Gases."

In these standards are specified proper provisions for the storage of this fuel within plant areas.—*Walter H. Johnson, Staff Engineer, Liquefied Petroleum Gas Assn., Inc., Chicago*

Article Atomizes Aerosols But Fogs Crystal Ball

Dear Editor:

The article on the "Pushbutton Foods" is extremely well written. It does such a good job of outlining the current situation on aerosol food containers that I find it impossible to add or subtract anything of any significance from the subject as written.—*Ray B. Wakefield, Director of Research & Quality Control, Gerber Products Co., Fremont, Mich.*

Dear Editor:

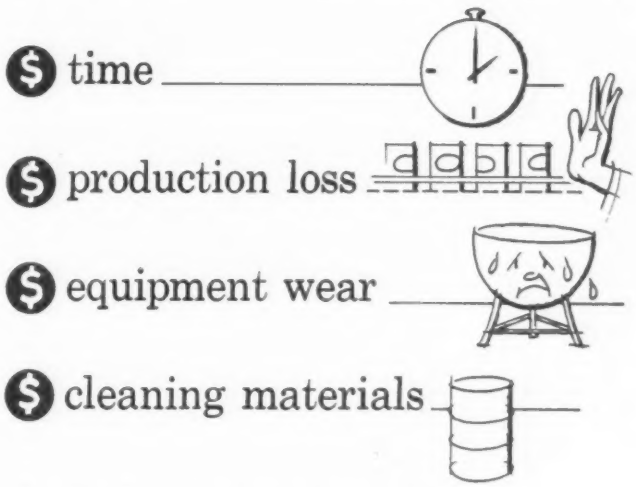
In "Pushbutton Foods" you haven't told exactly what's going to happen. Your crystal ball is not endowed with characteristics from the other world.

But you've done a very timely job, covered the aspects of it in which questions exist, and given the potential user the wherewithal to decide whether to get into it or not. The coverage is complete and very well done.—*Roy B. Morse, Professor, Department of Food Science, Rutgers University, New Brunswick, N. J.*

Dear Editor:

You have done an excellent job in presenting the background and pres-

Add up your total cleaning costs...



and see how you save with

OAKITE SPEED-CLEANING

Take a new hard look at any cleaning job in your plant. Notice how the big costs are hidden at first—the time it takes . . . equipment out of production . . . possible damage to equipment. Compared with these major costs, the material itself is a minor cost.

That's why buying a cleaning material at price-per-pound can be the most expensive way in the end. It's why safe Oakite speed-cleaning gives you low-cost end results—always.

And here's an interesting point. Consider the low concentration you need with an Oakite compound compared with an ordinary cleaning material, then figure the cost *per gallon of solution*. It turns out that you save even here—that Oakite quality compounds actually cost less!

Find out about the big benefits that go with Oakite methods and materials, Oakite service and know-how. Call your local Oakite man or write for free booklet on food plant sanitation to Oakite Products, Inc., 26G Rector Street, New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE
In our 50th year

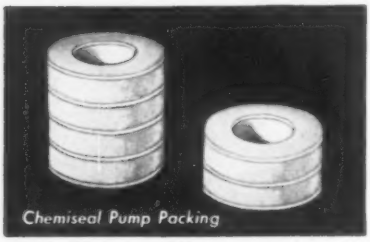
Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

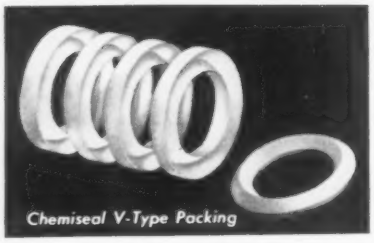
For more data, circle 273 on Reader Service Card

IMPERVIOUS TO FOOD ACIDS, ALKALIES, SOLVENTS, STERILIZING TEMPERATURES

Chemiseal® Packings are fast replacing other type packings throughout the food industry because they are the cleanest packings known and the easiest to keep clean. Made of pure TEFLON*—tasteless, odorless, colorless, non-contaminating, corrosion-proof, and the slipperiest known solid material to which nothing will adhere—they were designed by specialists for sanitation problems in the food and chemical industry.


Chemiseal Pump Packing

FOR PUMPS—Chemiseal Pump Packing Rings are molded from shredded pure TEFLON with TEFLON suspensoid. Extremely effective for rotating and reciprocating shafts. Provides a low friction 2-way seal that not only prevents axial seepage, but seals against shaft and stuffing box as well. Supplied in sets to meet specific requirements. Garlock No. 9167.


Chemiseal V-Type Packing

FOR VALVES—Chemiseal Valve Packing Rings are solid TEFLON available in V-Ring, triangular, diagonal, conical and Garlock Chevron† designs. Extremely resilient, tough, antihesive—they seal with low gland pressures and operating torque. Supplied in sets to meet specific requirements.

For prompt service, contact one of The Garlock Packing Company's 30 sales offices and warehouses throughout the U.S. and Canada, or write for Bulletin AD-155.

® U.S.G. Trademark * du Pont Trademark † Garlock Trademark

United States Gasket Company
Camden 1, New Jersey

United States Gasket *Plastics Division of* **GARLOCK**

Comments & Questions

cut status of the new food aerosols. I have heard a number of very favorable comments about your article.—*Frank W. Blodgett, Sales Development, E. I. Du Pont de Nemours & Co., Wilmington, Del.*

When Inspector Cometh

Question—When a food plant inspector shows up, should I give him the run of the place or try to restrict his operations? What precautions should I take?

Answer—Here are the procedures recommended during a visit by any inspector (Food & Drug, state, or city) by Insect Control & Research, Inc.—

On his arrival:

Welcome him and conduct him to the main office.

Politely check his credentials. Record his full name and office from which he comes.

Find out whether he is on a routine inspection or special-purpose visit.

Notify Plant Sanitarian, Production Manager, and Laboratory.

During the inspection:

Plant sanitarian and either a production or lab representative should accompany the inspector during the entire time he is in the plant.

Ask the inspector to direct all his questions to these management representatives. They should be fully qualified and informed on the entire operation and are, therefore, in a position to answer questions accurately.

Answer all questions truthfully.

Do not volunteer any unasked-for information.

Record all remarks made by the inspector regarding any insanitary conditions.

Offer him complete cooperation, but do not offer gifts or try to entertain him.

If samples are taken:

Get a receipt for the samples taken.

Get a complete set of corresponding samples.

Run the duplicate samples for extraneous matter and record the results.

General:

Keep written notes on where the inspector goes, in what he is interested, time in plant, pictures taken.

On completion of the inspection and before leaving the premises, the inspector is required by law to leave with you a written list of the deficiencies (if there are any).

For more data, circle 274 on Reader Service Card

Give a PLUS to your product

Brighter Appearance • Better Texture and Consistency • Finer and Fresher Flavor with EXCHANGE Products from Citrus

Exchange Pure California Lemon Juice

Lemon juice is nature's most effective anti-oxidant. It contains many organic reductants, including ascorbic acid and a rather broad group of phenolic anti-oxidants which fall under the classification of flavonoids, sulphydryl-like compounds and possibly flavonols, which act synergistically to give lemon juice its remarkable anti-oxidant properties. It discourages the growth of microorganisms, retards enzymatic action, prevents oxidative browning, reduces the pH of low acid foods and actually possesses the ability to enhance natural food flavor in many foods such as the natural peach flavor in freestone peaches. It is prepared by Sunkist Growers especially for industry use in baby foods, low acid fruits and vegetables, canned and frozen fruits, fruit juices and nectars, mayonnaise and salad dressings, sea foods in all forms, cured meats and wherever a problem of appearance or perishable flavor exists.

Exchange Citrus Pectin— Slow Set and Rapid Set

There is one tailored to your special need. They are used by more American preservers, confectioners, and food processors than all other brands *combined*. Guaranteed by Sunkist.*

Exchange Low Methoxyl Pectin— Pectin L. M.

The *only* pectin that forms a true jell without sugar. It is the exclusive choice for aspics, jellied fruit and vegetable salads, low calorie jams, and dietetic fruit jells. Guaranteed by Sunkist.*

Exchange Pure California Orange Juice

Gives your product more of the true fruit characteristics—because it is made from California oranges, known for their richer content of ascorbic acid, amino acids, polysaccharide complexes, B complex factors, carotene (pro-vitamin A), and aromatic flavor compounds. Prepared especially for the food and beverage industry. Guaranteed by Sunkist.*

Exchange Frozen Lemon Puree and Exchange Frozen Orange Puree

Both purees of whole lemons and oranges (seeds removed) are standardized in juice acidity, sugar content and flavor. Purees give a like-fresh tangy taste to food recipes and beverage formulas. Guaranteed by Sunkist.*

Exchange Lemon Oil, U. S. P.— California Cold Pressed

Because of its clarity, uniformity and flavor intensity, it is the 10 to 1 choice over all other lemon oils sold in America. Never needs pre-testing when received in EXCHANGE-sealed containers. Guaranteed by Sunkist.*

Exchange Orange Oil, U. S. P.— California Cold Pressed

For true aromatic flavor, full color intensity and pure California flavor strength, EXCHANGE brand is the orange oil standard of the world. Guaranteed by Sunkist.*

*Guaranteed by Sunkist

EXCHANGE brand citrus products are produced and guaranteed by Sunkist Growers, Inc., representing the world's largest supplies of lemons and rich California oranges.

Every EXCHANGE brand product is made in our own ultramodern plants to the highest standards of purity, quality and uniformity.

If you would like information on how Sunkist Research may help you to improve one of your products, write to:

Section "O"

Sunkist Growers

INDUSTRY SALES DIVISION
720 East Sunkist
Ontario, California

For more data, circle 275 on Reader Service Card

everything you sell
deserves the protection of

WAXED
GLASSINE

facts and figures,
coast to coast,
prove that

Sales-Power Packaging Begins With Lower-Cost Waxed Glassine

Licks every packaging problem, inside and out, with the greatest of ease! Protects best, prints best, pulls best with pre-sold shoppers! All this—at lower basic cost, too!

THE POWER OF WAXED GLASSINE OUTER WRAPS:

- **More eye appeal**—Outshines them all with brighter, more lifelike picturing of your product. Whets appetites, stimulates more unplanned sales at point-of-purchase!
- **Billboards your brand**—Brilliant designing, over the entire package if you wish, gives your brand that can't-miss *billboard* impact! Here's product identification that's an irresistible invitation with mounting acceptances in sales, repeat sales.

INNER AND OUTER WRAPS OF WAXED GLASSINE MEAN:

- **Extra flavor protection**—Retains all that wonderful taste and flavor for consumers to enjoy, brings them back for more!
- **Extra freshness protection**—Self-sealing Waxed Glassine guards against damaging moisture, keeps product freshness and texture at their appetizing best for longer store and home life. Opens easily, closes tightly.
- **Extra grease resistance**—Waxed Glassine wrappers guard against penetration by fats, oils, shortenings; prevent rancidity. Packages keep clean, fresh, tempting!
- **Extra strength**—Sturdy Waxed Glassine passes every test of shipping and handling. Stacks better, cuts costs from crumbling, breakage, ripping and returns!
- **Lower cost**—Lower basic cost and an ever-available supply make Waxed Glassine the economy package with a profit-plus!

Waxed Glassine teams up with the experience and know-how of the nation's top converters and designers, gives your product the protection and modern design packaging that build bigger brand business. For expert packaging help, see your Waxed Paper salesman today. Or write us, phone us direct.

WAXED PAPER MERCHANDISING COUNCIL, INC.•38 S. Dearborn St., Chicago 3, Ill., STate 2-6115

For more data, circle 276 on Reader Service Card

For more data, circle 277 on Reader Service Card→

CONTOUR TRENTWELD TUBING is available in a wide range of grades including Hastelloy,* Zirconium, Zircaloy, Titanium, 19-9-DL – and in 10 basic tubing classifications (pressure, mechanical, aircraft, heat resistant, ornamental, sanitary, beverage, large diameter, shaping and formed tubing).

*Trademark of Haynes Stellite Co.

get high strength and uniformity with **TRENTWELD** stainless and high alloy pipe and tubing (*sizes range from 1/8" to 40" O. D.*)

As Trent makes them, today's welded pipe and tubing are as strong as – and even more uniform than – pipe and tubing made by any other method of manufacture. That's because (1) an exclusive welding process (Contour Trentweld®) virtually eliminates any bead or undercut, and (2) cold working and annealing after welding make the weld equal in strength and corrosion resistance to the parent metal.

Furthermore, Trent checks the quality of its pipe and tubing with a series of strict tests. All strip going into the welder is checked for width and tolerance. Samples of each lot are tensile tested. Periodic tests – flattening, reverse bend, flare and flange, coil and pressure – are conducted. Pipe and tubing for corrosive applications get rigid corrosion tests. And, if necessary, "single-wall" X-ray inspections, exclusive with Trent, can be made on any lot.

Naturally, pipe and tubing made to these standards can't be surpassed for strength, uniformity and service. But get complete details –

Mail coupon for free 48-page Trent tubing handbook – contains complete data on physical, chemical, electrical properties, corrosive data, theoretical weights, hardnesses, etc.

CONTOUR TRENTWELD

TRENT TUBE COMPANY

Subsidiary of Crucible Steel Company of America

General Offices, East Troy, Wisconsin

Gentlemen: Please send me the 48-page Trent Tubing Handbook.

*Name*_____

*Firm*_____

*Street*_____

*City*_____ *Zone*____ *State*_____

YOU BET!

MACK MODEL N's
really move the goods!

Granted—the Mack Model N is a sweet looking job, a real prestige-booster for any outfit. But, like its famous conventional B Model brothers—the Mack Model N is the most rugged, reliable, economical performer in its field . . . a Mack from the word "Go!" Sure . . . Mack Model N's have—

the power to move more goods. Mack Model N's offer a spread of gasoline or Diesel powerplants up to 205 h.p.—more than enough to meet your every need for power and performance.

the stamina to move more goods. Macks are built to standards no other maker reaches. These husky haulers are famous for the greatest freedom from road stoppages and down time of any truck—anywhere.

the handling characteristics to move more goods. Model N's shorter length, air shift, air boosted hydraulic clutches, air brakes and option of power steering mean fatigue-free drivers who stay alert and efficient all day long.

If you're plagued by the three C's—costs, congestion and competition—then call your Mack branch or distributor and take a long look at powerful, dependable Mack Model N trucks and tractors. And include your best driver and ace mechanic, too! Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

PLAN '59—Modernize Now for Growth, Profits

That the greater opportunity of the food industry constitutes a timely challenge has been pointed up on this page in our past three issues.

"The future of food is, indeed, entering a golden era of opportunity. Our objective is to meet that opportunity, both in quality and quantity." That's how it looks to Nathan Cummings, Consolidated Foods chairman.

"Ours is a business in a fortunate industry", observes Charles Mortimer, General Foods president.

"Prepare for the Coming Boom in Business" has been adopted as the theme of the annual bakers' convention in October.

To capitalize on the opportunity requires intensified efforts in every phase of "total marketing"—the modern concept of food manufacturing as a coordinated series of operations, from research to advertising—all aimed at increasing sales and improving profits.

Must gear facilities to opportunity

Certainly factory, office, and distribution facilities must be modernized more rapidly than ever before as part of a greater total-marketing achievement.

But the estimated $749 million being spent this year for new equipment and plants is too small to do the job in '59 and later years. It is too small even to offset rising costs enough to protect future business against consumer price resistance. It is only 1.5% of manufacturers' dollar sales volume. That's but half the percentage of sales spent by one food company acknowledged as a pacesetter—a company whose sales have increased $3.33 for each dollar of capital expenditures in the past 10 years.

A nation-wide FE check of obsolescence in food plants reveals a high percentage of equipment over 10 years old, and much over 25 years.

Many types of equipment in those age brackets are obsolete. Something more efficient is available to profitably lower costs and improve quality. This means that not enough is being spent for improvement in productivity, to say nothing about equipment not used 10 years ago—such as electronic data processing machines.

Obsolescence in some branches of the field is particularly severe. In meat, for example, one authority estimates that at least $200 million should be spent in '59 for modernization. For the entire food industry, the investment in profitable productivity should be well over $1 billion.

That will give you a general idea. We'll tell you much more in the PLAN '59 theme issue of FE next month.

October FE will help you to do it

Work on the October theme issue started months ago, and it was announced in June as part of an all-industry effort by McGraw-Hill magazines. The issue will point up degree of obsolescence, and other reasons for modernizing now. It will reveal what pace-setters are doing to give you "yardsticks" for your planning, and will spotlight outstanding profit-improving opportunities in plant operations, packaging, warehousing, and transportation. The issue also will tell you how to put the finger on profit-eating machines, and give you tips on sound financing and depreciation of new facilities.

Food industry modernization will be put into perspective with overall national trends by a McGraw-Hill economics department article.

FE's editors have planned this theme issue to help you and others in our fortunate industry gear your facilities to the greater opportunity, the golden era, the coming boom—as well as to improve profit margins at your current level of business.

NOTHING SELLS LIKE FLAVOR!

There's no secret as to what makes confections, soft drinks, instant desserts and other prepared food products sell and sell and *sell*. Our caption tells the story: NOTHING SELLS LIKE FLAVOR! The most successful brand named products are those whose labels identify them instantly as items of top quality and superior flavor. This is a point for manufacturers to remember when working out their new-product formulations: if flavors or flavoring additives are needed—choose only those known reliably to be the best. You can always be certain of flavor quality, uniformity and dependability by using FRITZSCHE'S ... *A FIRST NAME IN FLAVORS SINCE 1871.*

FRITZSCHE BROTHERS, INC., 76 NINTH AVENUE, NEW YORK 11, N.Y.

A FIRST NAME IN FLAVORS SINCE 1871

Branch Offices and *Stocks: Atlanta, Ga., Boston, Mass., *Chicago, Ill., Cincinnati, Ohio, Greensboro, N. C., *Los Angeles, Cal., Philadelphia, Pa., San Francisco, Cal., St. Louis, Mo., Montreal and *Toronto, Canada; *Mexico, D. F. and *Buenos Aires, Argentina. Factories: Clifton, N. J., and Buenos Aires, Argentina.

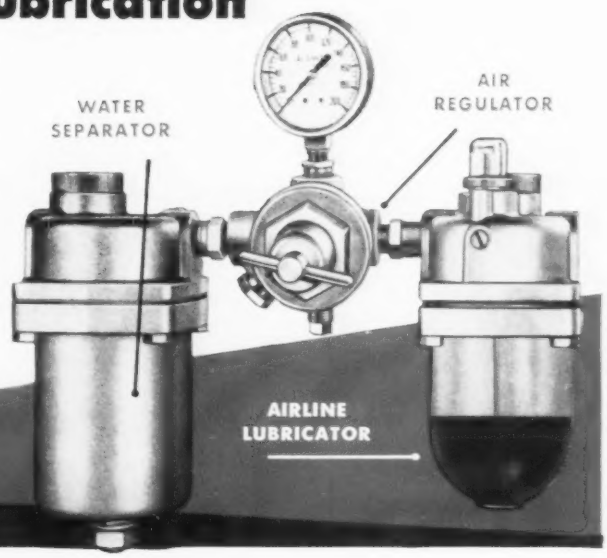
Alemite "Tri-Duty" air line controls!

All-New...for the cleanest, driest, best-regulated air line lubrication

Automatic Water Separator! Removes all of condensate, all the time. Traps dirt particles to prevent damage to sensitive air line devices. Handles all air line pressure up to 200 PSI and flow volume from 5 to 50 CFM.

Air Regulator with Gauge! Assures accurately controlled air – prevents erratic operation and damage to equipment. Adjusts to any pressure up to 200 PSI.

Automatic Air Line Lubricator! Provides automatic lubrication to air-operated mechanisms. Air stream controlled by compensating Venturi valve. Nine-ounce capacity.



All-New features offer outstanding advantages:

1. Single Unit Control Lubricator. Regulates the exact oil output required.

2. Visual Oil Counter. Oil sight dome in lubricator permits visual observation and count "per-drop" of lubrication.

3. Uniform Oil Mixture. Regardless of air pressure and volume!

4. Consistent Output. Oil and air mixture proportionately constant.

5. Easily Installed. Straight "inline" pipe connections . . . ½" p.t. inlet and outlet ports.

6. Wide Oil Range. Handles all viscosities of oil up to 500 SSU at 100° F.

7. Continuous Operation. Oil reservoir is refillable while unit is in operation.

8. Instant Oil Feed. For intermittent or continuous tool operation—no lag!

9. Filter Oil Tube. Removes all contamination from oil passing into air line.

10. Concentric Venturi Design. Assures constant, uniform mixture of air and oil.

11. Contamination-Free Air. Removable strainer in Air Regulator traps minute dirt particles.

12. Effective Control of Air Flow. Air Regulator eliminates excessive pressures and sudden surges.

13. 100% Condensate Removal. Water Separator removes and automatically dumps 100% of the condensate present in air lines.

Mail Coupon for Full Information!

Symbol of SW Excellence

ALEMITE
DIVISION
STEWART-WARNER
CORPORATION

1850 Diversey Parkway, Chicago 14, Illinois

ALEMITE, Dept. S-98
1850 Diversey Parkway, Chicago 14, Illinois

Please send me all the facts about Alemite's new "Tri-Duty" Air Line Controls.

Name .....

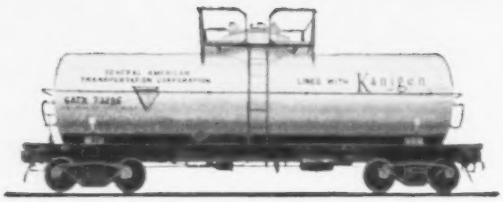
Company .....

Address .....

City ..... Zone ..... State .....

For more data, circle 280 on Reader Service Card

THE TANK CAR NEWS OF 1958



GATX cars lined with Kanigen®... new nickel-alloy coating

KANIGEN, a unique patented process, deposits a hard, uniform, corrosion-resistant nickel-alloy coating on tank car interiors . . . lasts four to six times as long as phenolic, epoxy or neoprene linings. You can load at high temperatures that would destroy other linings. For example, 73% caustic soda can be piped in at unlimited temperatures.

Tank cars lined with KANIGEN are also being successfully used for liquids such as tetraethyl lead, ethylene oxide and glucose.

If your product is a liquid, GATX furnishes or can build a tank car to transport it. GATX maintains a nation-wide network of shops for servicing.

No capital investment . . . when you ship GATX.

KANIGEN is a trademark which identifies chemical nickel coating by GENERAL AMERICAN TRANSPORTATION CORPORATION and its licensees, the product resulting therefrom and compositions produced by them for use in chemical nickel coatings.

GATX GENERAL AMERICAN TRADE MARK

GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South LaSalle Street • Chicago 90, Illinois

Offices in all principal cities

For more data, circle 281 on Reader Service Card

THE ONLY LUG CAP . . .

deep sides give added strength; choice of plain or knurled sides; flat-seating threads for sure seal

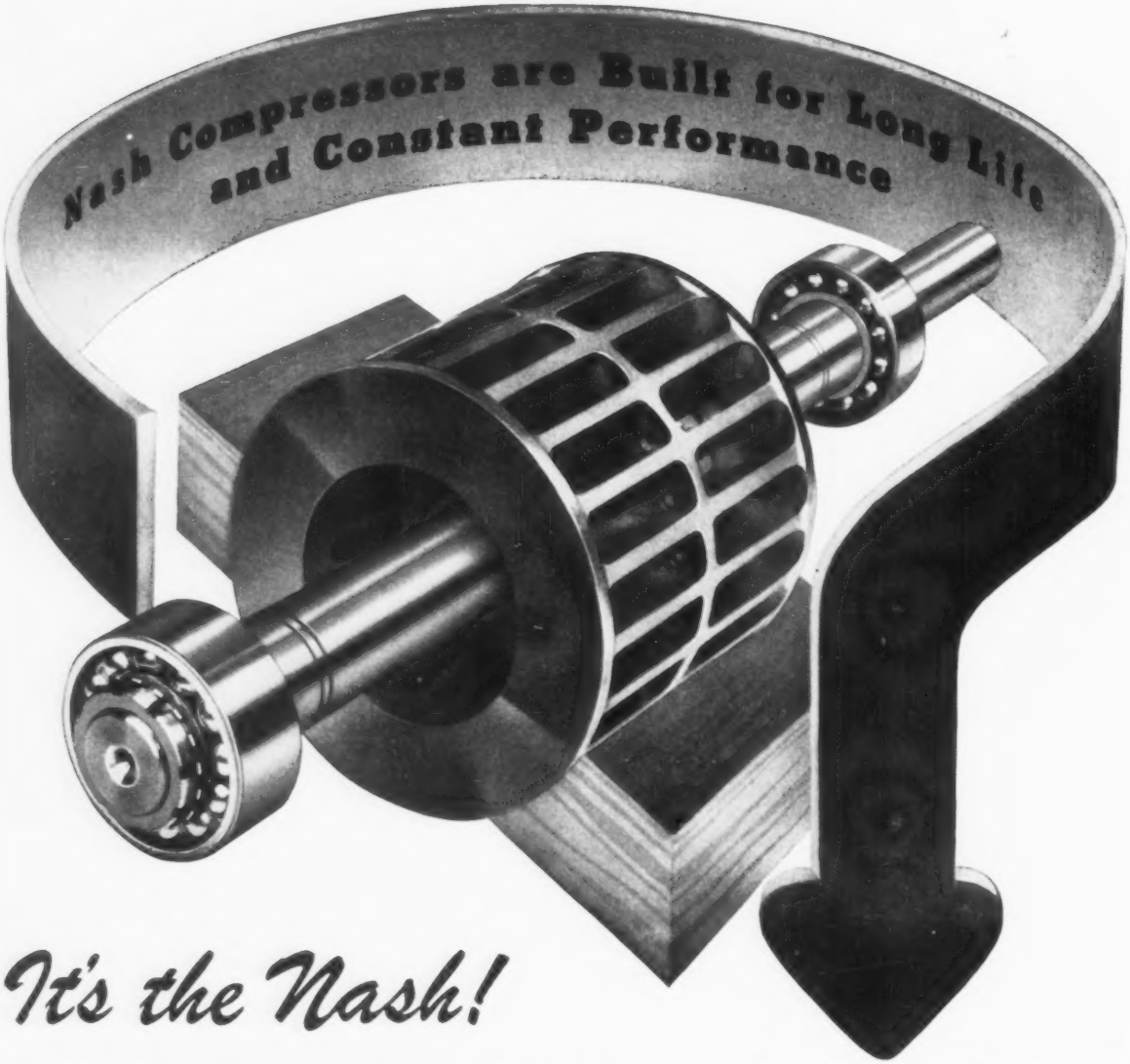
WITH A LIVE RUBBER SEAL . . .

best withstands live steam; won't stick to glass; easy to apply; stays put; vacuum-seals

AND ONLY CROWN MAKES IT!

for cans · closures · crowns · machinery **CROWN**

CROWN CORK & SEAL COMPANY, INC., 9300 Ashton Road, Philadelphia 36, Pa.



It's the Nash!

The ability of Nash Compressors to maintain original performance over long periods is no accident. Nash Compressors have but a single moving element, the Nash Rotor. This rotor is precision balanced for long bearing life, and it revolves in the pump casing without metallic contact. Internal lubrication, frequent cause of gas contamination, is not employed in a Nash. Yet, these simple pumps maintain 75 lbs. pressure in a single stage, and afford capacities to 6 million cu. ft. per day in a single compact structure.

Nash Compressors have no valves, gears, pistons, sliding vanes or other enemies of long life. Compression is secured by an entirely different principle of operation, which offers important advantages often the answer to gas handling problems difficult with ordinary equipment.

Nash Compressors are compact and save space. They run without vibration, and compression is without pulsation. Because there are no internal wearing parts, maintenance is low. Service is assured by a nation-wide network of Engineering Service offices. Write for bulletins now.

- No internal wearing parts.
- No valves, pistons, or vanes.
- No internal lubrication.
- Low maintenance cost.
- Saves floor space.
- Desired delivery temperature Automatically maintained.
- Slugs of liquid entering pump will do no harm.
- 75 pounds in a single stage.

NASH ENGINEERING COMPANY
312 WILSON, SO. NORWALK, CONN.

SPACE FEEDING

Challenges Food Engineers

Lots of people talk about it. But very little has yet been done about it . . . Here are answers to such questions as: What is it? Where do we start? What are the prime problems? What should food processors be checking?

ROBERT G. TISCHER

Assistant to the Commandant for Special Projects, Quartermaster Food & Container Institute for the Armed Forces, Chicago

MAN'S ENTRY INTO SPACE is near at hand—this prospect being convincingly evidenced by the frequent launchings of extra-terrestrial rockets by the U. S. and U.S.S.R.

First, however, must come solution of the problems in connection with bringing the vehicle safely back to earth. Then it will be possible to "round-trip" a variety of plants and animals for assessment of their behavior under conditions imposed by the initial short flights—perhaps only hours in length at distances of a few hundred miles from the earth's surface.

To be ready for man to follow directly, we must—well prior to these initial accomplishments—efficiently research and develop practical systems for supporting a human in space so that he may function in the complex tasks he must perform. And, of course, the object is for him to return with new, desirable (and very expensive) information upon which further advances into space can be based.

If this planning is delayed by watching and waiting, the weight of the problems respecting the space man's demands for oxygen, water, and food may put the brakes on otherwise rapid developments in space flight.

Progress has been made in the formation of the Space Agency of the U.S. Government. We are awaiting announcement of an integrated program that will not only assure use of a high percentage of the widely varied talents available for missile and rocket development but will also provide a schedule of activity on space medicine, psychology, and feeding.

In light of the new concepts and requirements of space feeding, the food processor, the food engineer, and their trade associations, should make every effort to understand the demands which may be placed upon them.

Short and Long of It

It already has become common practice to refer to short, medium, and long space flights as the three important—and measurably different—classes. For our purposes, it is most convenient to figure short flights as those counted in days or a few weeks. Medium flights in weeks or months. And long flights in months or years.

The first group includes flights in our latest high-altitude planes. Here, there will be a closing of the gap between high plane flights and short rocket flights.

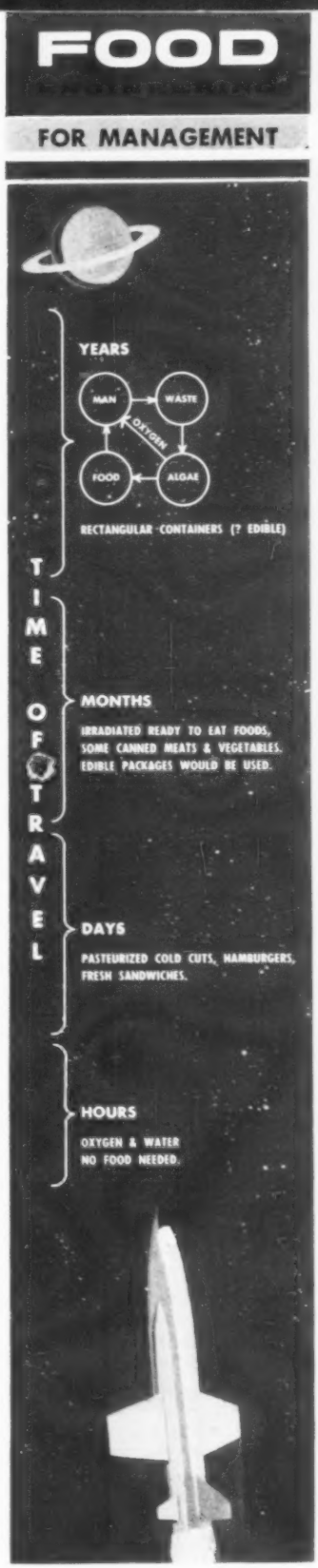
In the second, or medium, category would come ventures in man-made satellites, moon excursions, and the like. And the long flights would encompass trips to other planets.

What Feeding Entails

The nature of the feeding system depends on the man and the special factors imposed upon him.

Dominant is the 1-to-1,000 weight ratio of anything to be sent aloft in a rocket. This has brought many to suggest dehydrated or concentrated foods to save weight and space. Others contend that frozen or even fresh foods would be the better choice.

Let's examine these arguments relative to a short trip into space. A



LENGTH OF TRIP will be criterion for practical space-feeding.

Knowledge May Be Crucial—6 Key Points

Workable knowledge of space flight—and hence space feeding—may become vital to our survival.

The new age of rockets and man-made satellites punctuates the fact that these problems are real—no longer fantasies of science fiction.

Such real questions demand practical answers—meaning, further, that certain of the information gained in developing space feeding systems will have specific bearing on some everyday food problems.

Food processors who "are abreast" should check these points:

1. Current status of Government and subsidiary space operations—to spotlight the areas where consideration of space food and feeding is needed.
2. Whether the trade associations are "on top of" new space developments which may change the feeding picture.
3. Potential values of both old and new foods for such space-flight use, with attention to required storage life, use efficiency, and preparation factors.
4. Kinds of packaging that can be used to minimize weight and space, according to each of the projected types of space excursions.
5. Factors posed by the very specialized type of man (the space man) relative to the requirements for food.
6. Specific factors concerning closed-cycle feeding far from the earth.

small man weighing about 128 lb. would require roughly 1½ lb. of oxygen, 5 lb. of water, and 1 lb. of dry food to exist for one day.

The food could be constructed out of pure proteins, carbohydrates, fats, and other components, to bring highest caloric efficiency and eliminate any useless material such as bone, cartilage, skin, and the like. While this is an intriguing possibility for space feeding, the matter of increased gear for preparation and the immense problem of providing a well-liked food by this means have not been fruitfully attacked.

If a part of the water known to be necessary is left in the food, it becomes possible to provide a wide variety of fresh and frozen foods which are not only familiar to the space man, but are in large measure very well accepted. Since these same foods are also easily digestible, it is hard to see why there is any great advantage in unfamiliar, special food mixtures or in dehydrated foods, since the total amount of water and food required remains fairly constant whether the water is in or out of the food.

On very short flights (measured in hours) it is likely that the space man would require only oxygen and water.

On flights in the medium range, questions of food storage-life arise. Here, it will be necessary to consider efficient, acceptable processed foods in very light packages requiring a minimum of space for storage. With the trips taking weeks or months, many fresh foods and all frozen ones may be dropped from consideration. For the weight of gear needed to maintain them for extended use would literally outweigh their usefulness.

When really extended excursions are undertaken, re-supply will be impossible. And it will be equally impossible to carry along enough food for the entire journey, unless a space ship of tremendous size is envisioned.

It is usually concluded that a space man existing under such conditions will be supplied with oxygen and food by a culture of single-celled green plants (algae). They would live efficiently on human wastes. Thus, the small amount of biological material carried along at the outset would be effectively "recycled" to support the space man no matter how long the journey.

While there appears to be no other important contender for this task, it should be said that algae, while they do turn out oxygen fairly efficiently, are not enthusiastically accepted as food by most humans. Even in animal feeding, tests seem to indicate that something less than 10% of algae in an otherwise standard diet is all that may be "inflicted" without noticeable negative changes in the subject.

This means that much more must be known about the combined capacity of green plants from algae to spinach if a long-lasting closed cycle system is to be provided for satisfactory use in long flights.

How Solve the Problems?

Until appropriate man-carrying space craft are available, the final test of any feeding system cannot be completed.

Meanwhile, however, attention can be centered on simulated flights in which, with the exception of altered values in gravity, many of the expected space-flight conditions can be provided. The U.S. Air Force is already conducting such tests. But the field is hardly overcrowded.

There are other practical aspects: Some of the feeding methods which may be worked out for space craft may also find use in disaster feeding. And considerations relative to submarine and guerilla warfare also add impetus.

Of most immediate concern is extended attention to inflight feeding as it may apply to short space flights.

Accelerations which a man must "take" during blast-off are expected to reach the neighborhood of seven forces of gravity (7 Gs). It is believed that a man will be able to come through this treatment, even though initially "blacking out" from the shock. Subsequently, with the flight underway, he will be requiring food.

At this time, highly acceptable fresh and prepared foods are in order. These items should be in easy-to-open packages, and they should be "ready-to-eats," needing no heating or cooling.

Here may be a market for some of the thousands of new food items introduced each year by the food industry.

It should be remembered, however, that Air Force low-gravity tests —relating to weightlessness in space— tell us that there may be difficulty in eating and in retaining food once it's swallowed. It may be necessary to provide an artificial gravity by rotation of the space ship. Other less popular choices are the use of food-drug combinations, nose tube feeding, and intravenous feeding.

Flights of medium length call for foods in light packages for most efficient storage commensurate with available space. To minimize or eliminate need for temperature-controlled storage space, use of foods that are radiation sterilized or radiation pasteurized ("pasteuradiated") is suggested. It is pertinent to keep down ancillary equipment in general.

Feeding systems for really long flights seem basically to be the concern of the bio-chemist. However, the know-how of the food technologist will be of specific aid toward resolving the questions posed on the path toward their development.

—*End*

1. Pinpoint cause 2. Fix responsibility 3. Take preventive action

This 3-Phase Attack

Routs Sanitation Hazards

Revealing case histories show practical tactics in action

YOU CAN'T LICK sanitation hazards by half-way measures!

Specifically, it's senseless, and hence very expensive, to correct an insanitary condition without, at the same time, determining its cause and pinpointing responsibility.

For only then are you practicing true preventive sanitation, which aims at curbing repetition of an infraction. We will illustrate the technique with nine examples in case-history form. They are typical of food-plant sanitation problems found by official inspectors.

The object is to help you look beyond an embarrassing infraction and trace its cause, even if it should lie at your own doorstep. Once the source is fully understood and responsibility is correctly fixed, it is relatively simple to set up preventive measures that guard against recurrence.

T. L. HUGE
American Sanitation Institute & The Huge Co., St. Louis

Here are the case histories—forming, in themselves, a handy checklist of potential hazards:

1. No Sharp Targeting

Infraction: German cockroach infestation in base of vertical mixing vat in main processing room.

Cause: No direct spraying of residual insecticide on this equipment—no agent or equipment on premises. Instead, plant relies on fogging or space-spraying, which do not control such hidden infestations.

Responsibility: Plant superintendent erroneously assumed that his permanent overhead spraying system would automatically control all insects.

Recommendation: A tank-type sprayer with fan-pattern nozzle for applying mixtures of residual insecticides, such as 3% methoxychlor-½% lindane or 1% Strobane-1% Malathion. Inaugurate semi-monthly spraying of all areas frequented by crawling insects—either by present personnel or a reliable pest-control operator.

2. Equipment Inaccessible

Infraction: Literally hundreds of breeding confused flour beetles (adult and larvae) in dead-end of screw conveyor over mixer—directly in product zone.

Source: This section of conveyor is completely inaccessible for inspection, cleaning, and treatment. In fact, it had never been opened—a perfect insect harborage.

Responsibility: Plant engineer thought this area was "self-cleaning", which it definitely is not. Fault lies in poor equipment design and fact that nothing was done to correct the condition.

Recommendation: That all such food-conveying equipment be made readily accessible to sight and feel. Put clamps or hinges on lids or covers to make them removable. Vacuum interior surface weekly, spot-fumigate semi-monthly, and inspect periodically.

3. Rodent Evidence

Infraction: Abundance of mice droppings at wall-floor juncture in corner of basement ingredient-storage room. Mouse nestings and soiled cartons indicate active infestation.

Source: All bagged goods and cartons stored directly on floor and against walls. This provides well-protected harborages and prevents rodent control.

(Turn page)

Inspect all incoming materials

Responsibility: Receiving clerk did not realize importance of storing goods on skids, 6 to 10 in. from floor and 12 to 18 in. away from walls.

Recommendation: Observe the above precautions. Moreover, paint a white "traffic strip" at wall-floor juncture to warn against storing against walls and to facilitate inspection for pest evidence. Use rodenticide (anti-coagulant) bait boxes filled with both cereal-type and liquid baits.

4. Ceiling Harborages

Infraction: Both mice and dermestid insects breeding in false ceiling over main processing room. Excreta and cast skins could drop into foods.

Source: Complete inaccessibility of false ceiling, which makes it an excellent breeding harborage.

Responsibility: Management was aware of this condition. But it hesitated either to make ceiling accessible or remove it, because of appearance.

Recommendation: There is seldom, if ever, any solution to this problem short of removing the false ceiling. If exposed beams and rafters are painted, appearance suffers little.

5. Contaminated "Raws"

Infraction: No system for rejecting contaminated raw materials. Their "blind" use makes occasional product contamination almost inevitable. Here, ingredients were found contaminated with dead cadelle insects and wood splinters.

Source: Lack of both visual inspection before cars are unloaded and periodic microanalysis.

Responsibility: Management lax in this area of quality control.

Recommendation: Set up a visual spot program for sift-testing samples from each incoming car. In addition, periodically analyze products available to determine and employ the best.

6. CIP Difficulty

Infraction: Sanitary piping, when dismantled, found badly soiled with decomposed food residues and stone formations—especially at joints.

Cause: Plant depended solely on cleaned-in-place system to properly cleanse and sanitize the piping without dismantling the line periodically for inspection. Absence of sanitary gaskets and joints allowed food particles to accumulate despite action of cleaning solutions.

Responsibility: There had evidently been neglect in formulating

Get another—and paint it red.

the alkali-acid system for this layout. Furthermore, omission of sanitary fittings and regular inspection is inexcusable.

Recommendation: For proper cleaning and sanitizing, system requires complete revision. It lends itself ideally to CIP, and solution supplier can provide needed advice and service. However, plant personnel must assume responsibility for inspection and hand cleaning where needed.

7. No Hot Water

Infraction: Hand-washing facilities in toilet area lacking hot water.

Cause: Only cold water tap and soap were considered necessary for adequate hand washing.

Responsibility: Plant manager regarded hot water as a luxury and actually had hot-water line capped in all toilet areas.

Recommendation: Definitely provide hot water for hand-washing. It's vital to proper employee hygiene and for protecting product quality.

8. Product Contamination

Infraction: Filling of food hopper with same shovel that is used for floor sweepings. This has been going on for years.

Cause: This shovel is only tool available for both jobs.

Responsibility: Foreman failing to provide correct tools. He himself occasionally uses shovel for both purposes, thus sets bad example. All employees should have been sufficiently schooled in basic sanitation principles to realize that this dangerous practice could directly contaminate the product.

Recommendation: If a shovel actually is the best device for filling hopper, it should be of stainless steel. Provide a rack alongside the hopper to keep it off the floor when not used. Vacuum cleaning would be a better way to remove floor dirt, but if another shovel must be used, paint this one a bright red to warn against use on product.

9. Lubricant Hazard

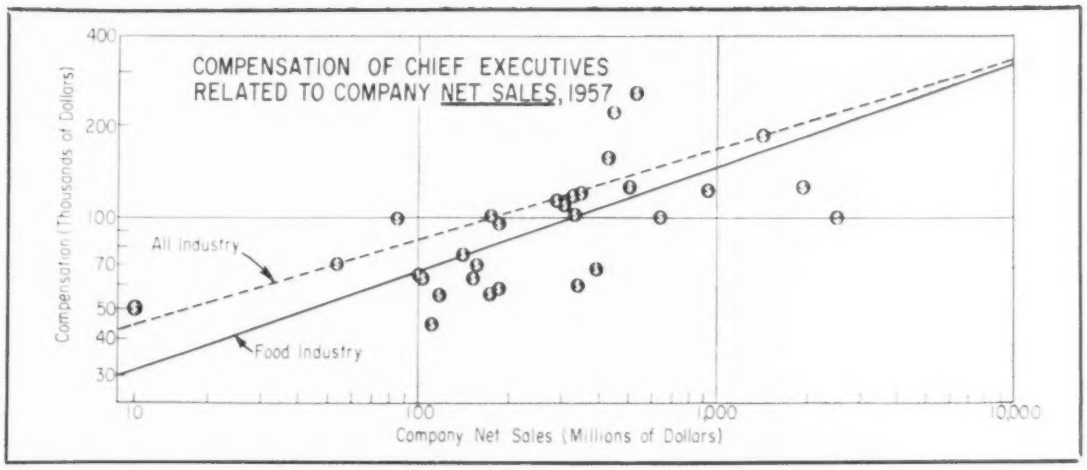
Infraction: Excessively greased bearing on filler occasionally drips directly into open cartons.

Cause: Over-greasing and lack of "catch pan."

Responsibility: Sanitarian did not know that he was to check for such avenues of contamination. Also, girl on line should have realized significance of this readily seen occurrence.

Recommendation: Install a hood or "catch pan" to protect product. Caution maintenance department against such neglect.

Call for help right away.



Their Pay Per Sales Dollar Runs Below Industrial Average

Solid line shows average compensation of chief food firm executives, relative to company net-sales scale. Line has been plotted from dots, which represent the actual payments to specific top officers of companies. Broken line depicts comparative average for all 18 industries surveyed.

What Top Food-Firm Men Earn

–As Compared With Their 'Opposite Numbers' in 17 Leading Industries

HOW DOES THE PAY of chief executives in the food industry compare with that of their counterparts in other major fields?

All things considered, it runs average.

Basis for this conclusion is a study of more than 600 companies in 18 large industries recently completed by our management consultant organization, McKinsey & Co., Inc., New York City. Here, company data, derived from SEC reports, were analyzed.

A key finding (chart above) was that top food-industry men don't do as well as the 18-industry average when total payments (salaries, bonuses, and deferred contingent compensations) are measured against company net sales.

In fact, until sales approach the $400-million mark, food companies pay their chiefs a lower average compensation per dollar of sales than any of the other 17 industries studied.

A glance at the chart discloses that the average chief executive of a food company with sales of $100 million earns just over $65,000 a year, whereas the average all-industry chief in this company-sales category is paid about $85,000. And where sales total $400 million, the food executive draws about $105,000 compared with approximately $130,000 paid the all-industry man.

Turning from average to actual compensation, only eight chief food executives drew equal or larger pay than their average counterparts among the companies studied in the 18-industry group.

The picture is somewhat more favorable when compensation of top food men is plotted against company net profits (see chart on p. 54). Average total compensations of chiefs at three representative profit levels are given in our table below.

As for median compensation of second highest-paid executives of

JOHN R. McINTOSH

McKinsey & Co., Inc., national management consultant firm, New York City

"Middling" Compensations Go to Food-Company Chiefs

(Comparisons of average '57 payments to top executives in 18 industries at three representative company net-profit levels)

Rank	$3-Million Net		$10-Million Net		$40-Million Net	
1.	Depart. stores	$102,000	Depart. stores	$152,000	Depart. stores	$245,000*
2.	Textiles	93,000	Textiles	128,000	Tobacco	195,000
3.	Auto parts	87,000	Steel & iron	125,000	Steel & iron	192,000
4.	Steel & iron	86,000	Tobacco	122,000	Textiles	183,000
5.	Elec. equip.	85,000	Nonf. metals	119,000	Building mat.	180,000
6.	Nonf. metals	85,000	Aircraft	115,000	Aircraft	180,000
7.	Heavy mach'y.	84,000	Light mach'y.	113,000	Nonf. metals	171,000
8.	Light mach'y.	84,000	Retail chains	111,000	**FOOD & BEV.**	**162,000**
9.	Tobacco	82,000	Auto parts	110,000	Retail chains	162,000
10.	Retail chains	81,000	Elec. equip.	109,000	Light mach'y.	160,000
11.	Aircraft	80,000	**FOOD & BEV.**	**106,000**	Chemicals	150,000
12.	**FOOD & BEV.**	**73,000**	Heavy mach'y.	106,000	Auto parts	145,000
13.	Chemicals	71,000	Building mat.	103,000	Elec. equip.	145,000
14.	Railroads	67,000	Chemicals	100,000	Paper & p'board	139,000
15.	Paper & p'board	66,000	Paper & p'board	94,000	Heavy mach'y.	135,000
16.	Building mat.	65,000	Petroleum, nat. gas.	86,000	Petroleum, nat. gas.	120,000
17.	Petroleum, nat. gas.	65,000	Railroads	84,000	Railroads	110,000
18.	Public util.	48,000	Public util.	64,000	Public util.	109,000

* Projected, since no company in survey had yet achieved this level of profits.

Electronically Perforates

pickles and other food products

cuts curing time from weeks to days!

Operation: cucumbers are deposited in hopper and lifted on ladder-type conveyor to top of machine. Then gravity-tumbled through heavy plexiglas-covered raceway under electronic perforators and into take-away conveyor or tank.

An Electronic Pickle Perforator, another new development by Standard Metal Products Co., leading manufacturer of custom food processing equipment.

Hundreds of microscopic electronic piercings penetrate deep into the cucumbers, letting out damaging gases to reduce costly "bloaters" . . . letting in sweetening juices to cut curing time from weeks to days.

High Speed—handles 6 to 10 bushels per minute, depending on pickle size.

Contamination-resistant—microscopic perforation eliminates danger of foreign matter contaminating cell structure during perforating . . . prevents breaking down of cell structure during sweetening.

Reduces shriveling—electronic perforations speed curing, yet reduce shriveling, whether cured in tank, barrel or bottle.

Low Maintenance—all stainless steel construction.

Adjustable: electrodes can be adjusted to permit effective perforating of large or small cucumbers or other cured products.

Completely portable: moves on heavy duty casters. Operates on 110 volts.

STANDARD
METAL PRODUCTS

STANDARD METAL PRODUCTS CO., 123 N. RACINE AVENUE, CHICAGO 7, ILLINOIS

GENTLEMEN: We are interested in your recommendations in regard to the food processing equipment checked, or described in letter attached:

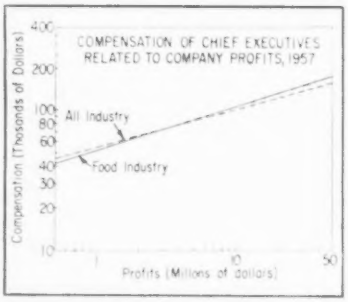
☐ coolers ☐ exhausters ☐ pasteurizers ☐ accumulating tables
☐ can washers ☐ case-sealers ☐ electronic pickle-perforators

Company_____

By_____ Title_____

Address_____

City_____ Zone____ State_____



PER PROFIT DOLLAR, top food executive earnings (solid line) rank more favorably with all-industry (broken line).

food companies, this worked out as 67% of the figure for top men, as compared with 69% in the 18-industry group. Third-line men: 58% (as against 57% all-industry). Fourth-line: 50% (52% all-industry).

Over the years, our studies have indicated that compensation of such subordinate top-level executives is closely linked to that of their chiefs, going up or down according to the pattern set at the top.

As for "fringes," the most frequently encountered executive benefits are stock option plans, pensions, and deferred contingent compensation.

Here, our survey found that in these provisions the food industry matches those of the broad all-industry group.

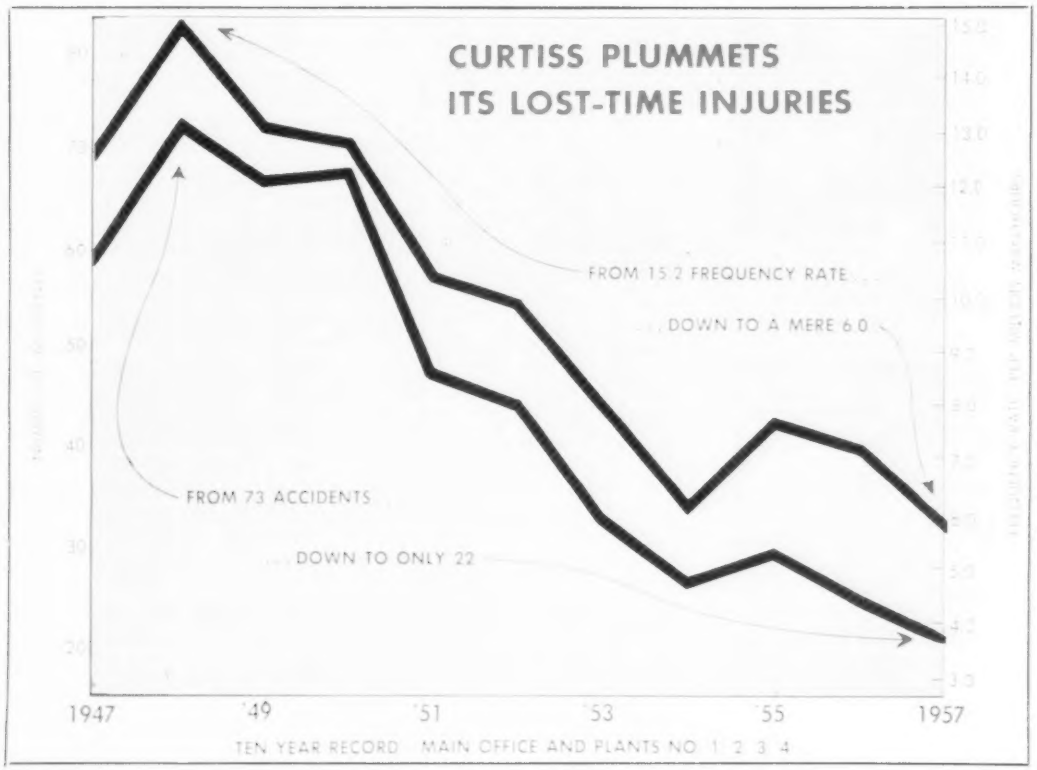
In 1957, 63% of the food companies surveyed had executive stock option plans, 93% had pensions, 40% had forms of deferred compensation. The respective all-industry percentages were 60%, 90%, and 33%.

These figures indicate that the food field's use of stock option plans and deferred compensation has been growing at a slightly faster rate than in all-industry.

Spotting the Trends

While total compensation of top food men has increased steadily over the past several years, the rate of rise has been lower than for all-industry. The 1957 difference was negligible—a 0.9% lift in the food field as against 1% all-industry.

The spread was wider, however, in '56—food up 4.4% compared with 5.1% all-industry. And the gap was substantial in '55—when a rise of but 1% in the food industry contrasted with a strong all-industry increase of 6.3%. —*End*



How to Cut Your Accidents in Half

Chicago candy maker demonstrates—with a practical 'built-in' safety program that really puts lost-time mishaps on the chute

STRONG SAFETY PRACTICES have enabled Curtiss Candy Co., Chicago, to cut lost-time accidents more than 50% since 1948.

Specifically, its accident-frequency rate (number of lost-time injuries per million man-hours) has steadily been reduced—from 15.2 in '48 to 6.0 in '57. And that 6.0 is a striking record, since the rate for the confectionery field as a whole (BLS figures) still continues to run around 13.0.

The company's minor accidents have dropped. So has its insurance premiums (FE Jan., p. 56). How was it all done?

—Simply by adopting a sound, realistic approach to all safety problems and winning the cooperation of all personnel—from top management to line workers.

Curtiss recognized that overconfidence breeds carelessness. To counter this, it's been constantly expanding its safety drive, accenting the little as well as the big things. Significant is the backing of top management, leading to—

1. A spark-plugging of the program with a full-time safety director, plus recent addition of an assistant director.

2. Organizing of active safety committees. Through these groups there is key action in training safety-minded workers.

In the six Chicago plants, some 170 employees have been attending these meetings every month. In short, attendance has topped 16,000 over the past 8 years. These committees talk safety to the last detail, seeking ways to improve working conditions and get rid of hazards.

3. The "selling" of safety. Company's made a broadside attack here, down to calling special meetings, talking to individual workers, posting of safety messages, showing of safety movies. It instructs workers to report every injury—no matter how small—to the immediate supervisor. In turn, all these injuries are then attended to by the registered nurse.

4. Installing physical safeguards. (Details later.)

5. Taking fast action on hazards. Policy is that serious hazards must be

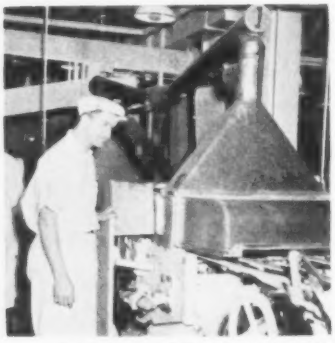
BEN B. BRYAN and JOHN V. ZIEMBA

Respectively, Safety Director, Curtiss Candy Co., Chicago, and Associate Editor, "Food Engineering"

DOWN GO

. . . SPLASH BURNS. They're minimized by fitting of company-designed safety latches (arrow) on lids of all cooking kettles.

. . . CAN CUTS. Company-built mechanical can opener jiffies lids off nut containers, with no jagged edges left to endanger hands.



. . . CHANCES OF EXPLOSIONS. For every Mogul is safeguarded with hood-and-duct system for carrying off hazardous starch dust.

. . . STEAM-BLOWUP POSSIBILITIES. For starch dryers now have switches that will automatically turn off steam.

immediately corrected. Others are attacked according to extent of danger posed. No matter how minor, any hazard must be remedied as soon as possible.

6. **Keeping management apprised on what's happening—and why.** Submitted are monthly accident-frequency reports and minutes of safety committee meetings. Further, there's close tab on the pertinent personal contacts, as circumstances require.

Let's look at a few typical examples of safety practices at Curtiss:

Talking Their Language

In hiring unskilled, yet willing, workers—especially those not familiar with English—a specific problem was faced. Unless such workers get adequate safety instructions, their accident-frequency rate will be above that of the others.

A Curtiss survey showed that those unfamiliar with the language were hurting the safety record. Here, there is probably no "one best" solution. But a plan that works well—certainly at Curtiss—is to concentrate on getting the new workers off to the best possible start on their new jobs, with particular reference to simple safety instructions.

Method of indoctrination is simple: Safety regulations are translated into French, German, Italian, Japanese, Spanish, Slovenian, Greek.

Safe Clothing

Wearing safe and suitable clothing is constantly promoted. Emphasis is on properly fitting apparel. Wearing of jewelry is discouraged, and women employees are guided in safe types of hairdress. Whenever practical, gloves are worn.

Safety glasses, or the like, are also worn by workers in machine and maintenance shops. Safety shoes are used, as needed, by those working on receiving and shipping docks, as well as by those in plant areas undergoing alterations.

General Conditions

Good housekeeping is spotlighted as a must. Janitors are kept busy at all times. They, and line personnel, are kept impressed regarding the hazards of careless housekeeping. Slips and falls have been brought way down through use of safety signs, proper stacking of heavy items and working units, assigning portable equipment to definite storage areas, etc.

Plant lighting has been specially studied, and improved where necessary. Vapor-proof light bulbs are used in dust-potential areas, also dust-proof motors. Excessive noise has likewise been targeted, and no specific cases of impaired hearing have been reported.

General color scheme for walls, ceiling, and columns is white, with Curtiss red (a brilliant hue) used for column tops. Yellow borders mark aisles, and corners of skids are painted a high-visibility yellow.

Luminous paint gives directional guidance to aid speedy evacuation of personnel in event of any emergency. Further, it betters the safety conditions in areas having artificial light. High-visibility yellow-and-black diagonal stripes, along with stenciled "Keep Clear" warnings, are employed in potentially hazardous loading-dock areas.

Carefully worded warning signs are extensively posted in specific operating departments. Distributed every month are 250 posters pointing up several safety subjects. Safety messages are periodically printed on paper napkins served in the cafeterias. And even time-clock cards carry safety messages. Moreover, safety reminder messages are issued by plant superintendents.

Curtiss does no penny pinching on safety facilities. Showers have been installed in areas adjacent to laboratories. Suitable, properly located gas masks have been furnished. Portable oxygen tanks and Orthoraters (eye-testing equipment) are available. And registered nurses are on hand at all times.

Physical Safeguards

Safety devices are constantly being installed on equipment to reduce dangers. Placing of guard devices is emphasized. Hot steam pipes have been insulated. CO_2 fire extinguishers are handy in potential blaze areas, such as the peanut roasters.

Burns from splashes of cooking candy have been significantly reduced—from over 30 cases in a month in one plant alone to less than 6 a month in six plants—through installation of company-designed safety latches on the kettles. These spring-type latches prevent lids from raising upon unsuspected or unintentional introduction of steam.

Guards further have been provided for out-of-the-way V-belts and other drives on periodic start-and-stop air compressors.

Braking devices have been in-

stalled on motors operating moving parts. Belts, for example, are instantly stopped, thus preventing injury to workers too impatient to wait for a mechanism to stop before raising the guard to clear a jam-up.

Start-stop Micro Switches have been put on a number of production units, like candy crushers, rollers, conveyor belts, etc. Safety treads have been placed on stairs. Solenoid-operated switches on Huhn dryers make certain steam is automatically shut off in event of power failure, thus curb chances of explosions. Admission of steam is, therefore, dependent upon manual control.

Overhead conveyors are adequately guarded to prevent products in transit from falling in case of jams.

A signal system affords protection for material handling crews. For example, a horn sounds when loading or unloading of a trailer is completed. With crew thus alerted, driver of pickup truck then moves in for coupling and clearing area for next trailer.

Such audio protection is used in still another manner: As a trailer backs up to loading platform, rear wheels pass over a treadle that sets off a buzzer to alert dock crew. Leg and body injuries have been avoided by this system.

A specially designed can opener (for cashews in 25-lb. tins) has reduced container-opening and container-handling accidents and, at the same time, has been a time- and space-saver.

It consists of three V-shaped blades which, in a single stroke of a hand-lever, easily and safely opens up to 200 cans a day. Open can lips are not jagged and are easily tucked inside can to minimize cuts on hands of worker emptying cans.

Bottoms of empty cans are similarly opened so lids can also be tucked. Thus, cans are readily flattened for loading on disposal skids. One skid takes a load formerly requiring five.

In the old routine, workers opened the cans with a guillotine-like hatchet. From 600 to 700 strokes were required to open a lot of 200 cans. Exposed, jagged edges were left. And the unflattened cans took up much space and posed a hazard.

Outstanding protection has been given workers in the Mogul department, with a company-devised system of hooding all units. This safeguards against starch-dust explosions. System comprises a hinged hood at feed end of Mogul, approximately 6 in. above top starch tray. Through a 7-sq.ft. opening, fine starch dust is drawn through and over Mogul into a 6-in. duct hooked up to an exhaust fan. Dust is collected in a roof-located cyclone.

Mogul's printer (which makes impressions in starch trays) and conveyor chain to depositor are also covered by two hinged hoods connected to still another 6-in. duct. Each duct has control dampers hooked up with a fixed fan. Dampers control air flow from Moguls at recommended 500 to 1,050-cfm.

Air velocity through ducts is important. If it's too low, dust settles on horizontal pipes. Therefore, each duct system is checked for recommended air velocity. Fan bearings are located outside of the housing.

Plant Evacuation

Careful instructions have been provided for evacuation of buildings in event of fire or other emergency. In case of fire, for example, person in charge of a department contacts the telephone operator, instructing her to give the emergency call to the plant superintendent and to keep the line open to receive further instructions. The superintendent gives the operator orders to notify the fire department, and the alarm is rung to evacuate building.

Fire captain and his assistants stand by, on hearing the emergency call, to receive orders to clear workers from building. And on getting order, they carry out the evacuation according to plan.

Captains must be sure all their men receive instructions on their duties in case of fire. A man guards each exit and keeps it clear so workers move out in an orderly manner. A man in each department also shuts off steam and electric power.

Incidentally, fire captains are responsible for location and condition of fire-fighting equipment, and they must make weekly inspections on their floors. All aisles and exits, for instance, must be clear. Fire doors must be in working condition. Extinguishers must be hung in conspicuous spots, and all exits must be clearly marked with red lights.

Meanwhile, the telephone operator notifies engineer, electrician, and master mechanic. And as she signals for evacuation, she notifies superintendent that the signal has been given.

Where other plant buildings are on the same loud-speaker system, the operator repeats the evacuation call several times over the system. —*End*

New Low Cost Chlorinated Water Supply

FOR FOOD PROCESSING PLANTS

KLENZADE

KLENZADE

IN-PLANT WATER

Chlorination

★ SIMPLE EQUIPMENT

★ LOW COST CHLORINE

★ "SPOT" LOCATION

Completely automatic feeding of Klenzade XY-12 Liquid Sodium Hypochlorite into your water line with a %Proportioneers% Heavy Duty Midget Chlor-O-Feeder. Low initial equipment costs, simple installation for any section or entire plant system. No skilled operator needed, no gas risks, no maintenance of elaborate equipment. Solution strength easily adjusted for clean-up time. Get the facts on this popular Klenzade "Package" and why it is ideally suited for your food processing operations.

COMPLETE

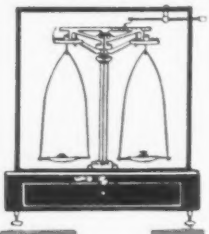
Sanitation Programs

Branch Offices in Principal Cities

KLENZADE PRODUCTS, INC.

BELOIT, WISCONSIN

A LITTLE



ALGIN DOES A LOT!

This unique water soluble colloid solves all these and other problems:

THICKENING	.20%	Will thicken and give good body properties to syrups, fillings, meringues.
SUSPENDING	.20%	Will suspend particles such as cocoa and citrus pulp.
STABILIZATION	.20%	Will retard or prevent water migration and ice crystal formation in frozen foods.
	.15%	Will stabilize cake icings, preventing excessive absorption or cracking and shaling.
	.005%	Will stabilize the foam formation on beer.
EMULSIFYING	.35%	Will produce stable oil in water emulsions even at very low pH. Is most useful in French Dressings.
GEL-PRODUCING	.80%	Will form tender and tasty gels for food uses, such as desserts, fillings, bakery gels.
FILM-FORMING	.15%	Will produce an oil resistant film on paper while 1% solutions will form films suitable for coating food products.

YOURS ON REQUEST: Technical data covering properties and applications of algin products. Simply note application of interest so that we can advise which type of algin product is most suitable for your requirements.

KELCO COMPANY

120 Broadway, New York 5, N. Y. • 20 N. Wacker Drive, Chicago 6, Ill. • 530 West Sixth St., Los Angeles 14, Calif.
Cable Address: Kelcoalgin—New York

Copier Breaks Data Jam

Thus Lipton assures fast inter-company flow of vital information . . . Special "twists" shortcut operations

GIRL PLACES "original" – report, form, letter, memo, or drawing–in top of machine (Eastman Verifax). And in a jiffy she pulls clean, sharp copies from bottom.

UNDER THE PRESSURE of today's business demands, clerical routines which you found feasible and efficient yesterday may now need radical purging of waste motion.

Such waste motion can chronically bottleneck the daily flow of office services. This is especially true when the schedule calls for rapid reproduction and dissemination of vital manufacturing reports and accounting figures.

The solution lies in shaping such operations to the special demands, employing most efficient machines, and open-mindedly adopting–and, where necessary, creating–improved techniques.

Take our situation at Thomas J. Lipton, Inc., major tea packer and manufacturer of soup mixes: At the 12-story building in Hoboken, N. J., our service for all in-plant copying work used to be centralized, with conventional copying facilities located on the 2nd floor.

This required a messenger service shuttling between these reproduction units and our Office Services Department on the 6th floor. And considering the time thus expended per copy made, it's evident how this remote arrangement could wreak havoc with performance.

In this former setup, we stacked items for copying in a basket of "out" work. There they piled up until there was a quantity deemed "worthwhile" for the messenger to make the trip down to the 2nd floor. It had to be enough to make an adequate assignment for the copying service operator, who was a skilled employee.

For maximum economy in this routine, the operator would copy documents in groups of four. This required collating and arranging of the sets of originals to be reproduced. After mounting came exposure and processing. Then the completed copies had to be properly sorted.

Finally, the 6th floor got the copies and parceled them out for systematic distribution.

Eventually, the sluggishness of this operation jammed our schedules –whereupon we made a time-study to spotlight the factors and thus indicate possible remedies.

New Way

Answer proved to be installation of a modern desk-top office copying machine directly on our 6th floor–in short, decentralization of copying. And this immediately paid these four benefits:

1. Eliminated need for the copy-job messenger service to the 2nd floor.

2. Sped our whole information performance by giving us direct on-the-floor copying facilities.

3. Saved, in comparative terms, 60% of the conventional copying service operator's working time, permitting it to be put to other duties.

4. Also saved more than 50% in materials.

In respect to the latter, specific breakdowns of costs of materials used–conventional process vs. the new desk-top copier–disclosed that our old method had been costing us more than twice as much for our copies.

Our department is often called upon to do liaison work among the various Lipton accounting units, which continuously tabulate totals on tea. As many as ten copies of a specific accounting unit's report must be rapidly made and distributed to the other units.

Further the Cost Department regularly prepares detailed worksheets of which a number of copies are required. Rather than assign a typist to the tedious job, the order is sent to us.

A primary point, here, is the 100% accuracy assured by using the office copying machine instead of calling for typed out carbon-copy transcriptions, which always are open to human error.

In the latter, very meticulous typing is required, followed by painstaking checking of the entire work, with erasures and corrections of any mistakes. But the copying unit eliminates all these chores, since it exactly reproduces the originals.

LIPTON SAVES WORK with this special weekly-production form – already preprinted with all constant factors. Cost personnel need only jot in fresh data and dates and whisk sheet to copying machine.

We streamlined our worksheet operation by preparing (offset reproduction) a series of special forms.

One such form (see photo) records regular weekly tea production. Blank spaces are filled in by Cost Department personnel and the completed form is sent to us. We copy it and distribute duplicates to interested executives.

Frequently, the Accounting Department has us make single copies of seven-column sheets that are loaded with figures. This is a decided saving, since copying them by hand would be most tedious and time-taking.

Dissemination of information received in single pieces of mail is

GEORGE HEATH

Manager, Office Services, Thomas J. Lipton, Inc., Hoboken, N. J.

DAY Hy-R-Speed Mills

cut your costs 3 ways

DAY Hy-R-Speed Mills insure economical, fast, quality production, and you save 3 ways:

1. **YOU SAVE ON CAPITAL INVESTMENT.** Its attractive price is a result of simplicity of design, a minimum of moving parts. It's built for years of dependable service.
2. **YOU SAVE ON OPERATION COST.** No skilled operator required. Complete clean-up requires less than 5 minutes. Precise particle size controlled by simple adjustment of stationary stone. Gives 4 times the production of ordinary mills.
3. **YOU SAVE ON MAINTENANCE.** Contact parts are rust proof. Stator and rotor stones are interchangeable, reducing inventory needs. Has record for dependable operation.

If you disperse paints, chemicals, inks, plastics or food products, it will pay you to use a Day Hy-R-Speed Mill. Make Day your one source for process equipment.

Write for new bulletin

The J. H. DAY Co.
Division of The Cleveland Automatic Machine Co.
SERVING THE PROCESS INDUSTRY SINCE 1887

The J. H. DAY Co. *Division of The Cleveland Automatic Machine Co.,*
4924 Beech Street, Cincinnati 12, Ohio

also facilitated by the office machine. An executive's routing of his original copy to many parties not only takes too long but leaves him without the piece for reference. We help by rapidly making and distributing copies of such items. The same is done with various memoranda.

Patching

Use of a bit of ingenuity can go far in speeding things and getting new efficiency. We've learned to practice various twists and tricks to streamline operations.

Let's say a typed report needs a revision. Instead of having the whole report redone, we locate a typewriter with corresponding characters and retype just the part that has to be revised. Then we paste the revision on the original report. This works so neatly that the subsequently made copies show no indications of the patching—they come out as "clean" as from any untouched original.

Patching is common with us—made specially feasible by the fact that many of the forms on which reports are made are prepared by our department on an offset machine. Our own typewriters are used to make up the offset forms in the first place. So we have right at hand the machine whose type matches the original.

Thus we've simplified the updating of offset forms. Here, the constant (such as name of product manufactured) may be the only item on a one-page form that needs revision. We patch it in—no need for a do-over of the entire form.

When we receive originals that are over the size limits of the copying machine, we follow these five steps:

1. Fold original squarely in half. 2. Make a separate matrix of each of two sides. 3. Reproduce copies of each side in usual way. 4. Appropriately trim edges and margins of copies and pair them into sets. 5. Form final single copies by neatly joining pairs with strips of colorless cellulose tape.

This matching process is suitable for either manuscrips or reports. Further, we've found it most useful in preparing copies of large drawings and sketches.

At Lipton, however, a great part of this piecing together to get bigger copies has now been eliminated—for we've added a second office copying unit that accepts larger originals. This is a unit that takes legal-size documents. It was specifically purchased due to a lengthening of many of our worksheets. —*End*

For more data, circle 287 on Reader Service Card

Ole Sage Episode

Is Rating of *Production* Workers Feasible?

BATT BULWARK, Mull & Mull works manager, lighted a stogie, then said: "Ole, I conceded a round to you at our last Guff & Gripers luncheon. I 'bought' the system you described for rating food plant workers who're members of craft unions . . ."

"Hear! Hear!," interrupted Superintendent Ed Strong, of Zenith Canning Co.

". . . But," went on Batt, "I certainly can't 'go' for any system of rating production workers!"

"As I recall it," contributed Barney Hasbrook, "Ole was saying he knew of at least one rating plan for production people that was acceptable to *both* management and employees. Tell us about that plan, Ole. Then maybe Batt'll see the light."

Before Ole could begin, Batt cut in again: "Suppose you got 20 'r 30 women doing hand work on a canning line. Or hand-packaging crackers in a bakery. Well, it may make sense to put 'em on piecework and pay 'em according to what they turn out. But as to merit-ratin' 'em, I don't see how it can be done."

"Well, you have to understand," Ole replied, "that successful merit rating of production personnel isn't limited to any one plan. Here, I'd like to tell you about one rather unusual system that was worked out just to rate production people.

"It's been in satisfactory use by a fair-sized food company for at least 15 years. It started off with the approval of both local union employees and officers—and now has the blessing of the international."

"Could this system be readily applied in other plants?" asked Ed.

"Yes—and no," Ole answered with a chuckle. "I include the 'no' because many managements wouldn't accept the basic principle—that is, rating the employees once a month, and having each worker's rating arrived at *by mutual agreement of both his supervisor and his union steward.*"

"Jumping Jupiter!" roared Batt. "That's turning management over to the union. If workers like such a plan, it's no wonder."

"They *do* like it," declared Ole. "That's because they're no longer dependent on the union contract alone for increases in pay. Upgrading is fairly frequent. The wage increase is based on the worker's improvement, as judged and agreed on by both his supervisor and steward. And this is irrespective of his seniority."

"Just as I said," jibed Batt, "it's fine for the workers—but what's in it for management?"

"You can be sure," countered Ole, "that management wouldn't have remained staunchly behind this plan for so many years if it didn't benefit. It's to be emphasized that management gains whenever workers can be advanced due to their own improvement."

"There have been many other strides, too," Ole went on. "This company's absenteeism and tardiness are unusually low. In addition, both frequency and severity of accidents are down below average. Moreover, the low employee turnover due to quits is the envy of all the surrounding plants. For years, morale at this company has been exceptionally high . . . Would you say all that added up as gains for management?"

"Sounds good," Batt admitted. But then he belittled: "Still, I bet there's a catch. Come on, Ole, let's have it."

"No catch," Ole insisted. "And there's still another advantage to both management and the conscientious workers that will surprise all of you—and you, Batt, in particular."

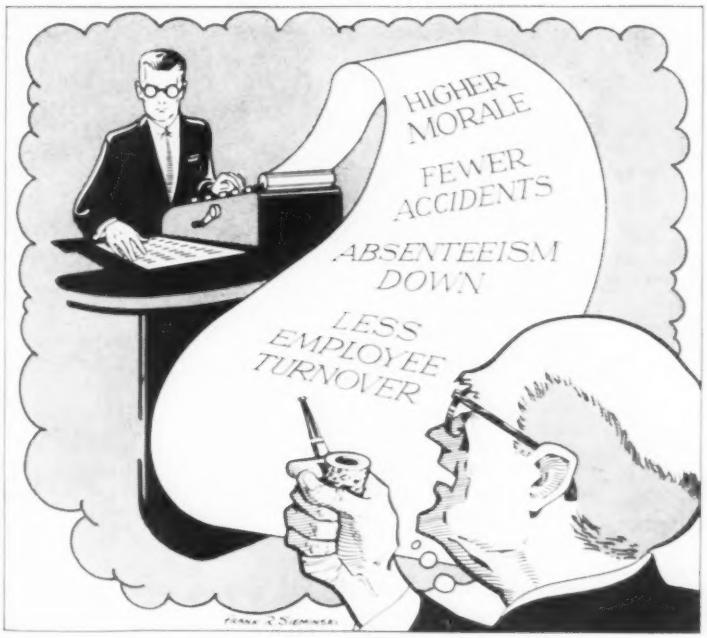
Ole paused as most of the group glanced toward Batt, then continued: "In periods of layoff in this semi-seasonal plant, it's usually the union stewards who recommend the retention, regardless of seniority, of those workers who have shown greatest improvement and who have highest merit ratings. (See FE Nov. '48, p. 71)

"From now on, I'll believe anything," Batt cracked sarcastically. Then he pushed back his chair, signalling that for him, at least, the meeting was over.

"Just a minute," called Milt Sorenson as the members rose and started for the door. "Have we made plans for our next meeting?"

"Sure," came back Barney Hasbrook. "It'll be our Fall outing at Flagley's Woods."

"Right!" chorused the other G&G'ers as they lined up at the checkroom for their hats. —*End*



"Would you say that added up?" queried Ole.

IVAN C. MILLER
Food Engineering"

Checks salesman's thinking | Drafts conference agenda | Has everyone chip in

Broad-Gage Supervisor Training

With salesman's job getting more complicated, capable field generals are a big need now. Nestle develops sales leaders with tailored program that teaches men to think and spreads profit-making ideas to whole staff

GONE ARE THE DAYS when marketing was just a matter of dumping your product in the salesman's lap and saying, "Sell it!" That's because the simple 'drummer' approach of yesterday is out of place in 1958's complex marketing picture.

Today, your salesman must juggle a greater number of new products while facing more sophisticated buyers and much stiffer competition for shelf space—big factors that underscore the importance of having the salesman customer-centered as never before.

Smart food firms that are betting on new products and updated packages to keep ahead of the competition know that, in the end, a top-notch salesman must be 'in there' selling those products to store buyers before they can be bought by the public.

Hence, the great need to upgrade sales supervisors to do better jobs through developing and guiding more effective salesmen.

One company that's out to do just that, with a specially tailored sales training program, is The Nestlé Co., White Plains, N. Y.

"Objective of our program," says William C. Ritzel, assistant to the sales manager, is "to develop men who can think on their own feet, and who won't lose sales through the inability to handle difficult situations."

The training project is geared to the company's overall expansion program because, as Ritzel notes, "a company will grow only to the extent it's got people who can grow with it."

The program consists of special meetings for the administrative-level sales personnel—the many supervisors, also the region and division managers, and key assistants. Each get-together, carefully planned in advance, is a blend of conference discussions and brief informative talks graphically punctuated by visual aids. A series of eight meetings is run in order to cover all supervisory personnel in the company's various sales areas.

The training program brings Nestlé these 5 benefits:

▶ 1. Teaches a man to think quickly on his feet so that he won't fumble a sale when he runs up against an unusual situation.

▶ 2. Promotes a freer exchange of ideas so that if a man in Cleveland, say, has developed a successful solution to a certain problem, he can tip off the man in Atlanta who's been having trouble with the same problem.

▶ 3. Makes the man on the firing line a more effective company representative by giving him a broad-gage knowledge of products, company policies and objectives, and the overall distribution pattern of which he's a part.

▶ 4. Indicates those men who show promise of moving up into more responsible positions.

▶ 5. Strengthens the overall selling effort by making the supervisor a better administrator, teacher, and motivator of salesmen under his control.

Because the meetings are the heart of the training program, they're carefully mapped in advance. Ritzel draws up the agenda—based in large part on his extensive field trips to learn salesman's problems first-hand—and goes over it with General Sales Manager John Fairgrieve.

THAYER C. TAYLOR
Associate Editor, "Food Engineering"

Director's Routine

Spreads the know-how **Prompts action in field**

Boosts Selling 5 Ways

Avoided are both "school-teacher" formulas and corn-ball "get out there and fight" pep speeches. Talking down to the supervisors or treating them as if they were high school footballers won't stimulate their ideas or get across the points the company wants to make, Ritzel feels.

Also, while the emphasis is upon spontaneous discussion, a precise schedule is blocked out to keep the meeting flowing smoothly from topic to topic. And to make sure the men don't get bored listening to just one man–as well as to insure broad participation–each discussion is kicked off with brief talks by three of the supervisors present.

All influencing factors are considered–even down to "meeting atmosphere." Ritzel examines the room where the session will take place, making sure chairs are comfortable, ventilation is working, and lighting is just so. The aim here is as few distractions as possible.

A typical meeting runs for 2 days. It's launched with a welcoming talk by the regional manager, after which General Sales Manager Fairgrieve goes over the agenda, pointing up what directions the discussions may take and benefits the men will gain.

With the broad subject areas mapped out, a free and open 1-hr. discussion takes place, during which each man present speaks from 3 to 5 min. on any angle or aspect he desires. His talk may be about a big sale he's just pulled off, some questions to which he wants answers, or even a pet gripe.

Purpose here is to get the supervisors to take an active part right from the start. This helps break down shyness, shows the men the meeting is theirs (and not a classroom lecture), and gets them used to "public speaking."

Following this there's usually a talk by a product manager, who may fill in the history of a certain product, tell the reasons why it's included in the line, and the company's future plans for it. The feeling here is that the more a salesman knows about a product the more effectively he can sell it.

The balance of the morning is devoted to the first of the special topics that will be discussed during the 2-day session–for example, a typical one is "The Supervisory Function." Again, Fairgrieve opens with a snappy summary. Then 4-min. "kick-offs" are given by three of the supervisors.

Hand at the Helm

The subject is then tackled from all angles as each supervisor asks questions or provides answers. Taking his cue from what was said in the "kick-offs", Leader Ritzel guides the discussion to cover points raised in the opening talks. Should there be a bog-down or wandering far afield, it's his job to pilot the group back onto the track.

At Noon the meeting breaks for lunch. Because two days is a big chunk in the men's time (Nestlé's supervisors sell to key accounts as well as administer their territories), the first half hour after lunch is free for phoning business calls.

At 1:30 the meeting resumes, with Ritzel opening a discussion on the second conference topic–say, "The Supervisor's Teaching Functions." In turn, three more supervisors give 4-min. "kick-offs"–such as on how to praise and criticize salesmen, how the supervisor should put himself in the salesman's shoes when evaluating his work, and even how the supervisor should curb his desire to make a sale himself when he's out on the route with a salesman.

At 3:15 there's a second coffee break, following which the group discussion turns to the next subject –let's say, "Developing a Profit Orientation in the Sales Force." This time it's Fairgrieve's turn to start the ball rolling, and he's followed by three more supervisors.

The second day continues the group discussions but also includes more visual aid material. For example, during the morning the men may listen to a case history recording that describes a typical problem faced by a salesman and the two different ways it was approached.

Also shown in the morning is a movie, such as the one built around the role played by the supervisor–"The Man Behind the Man Behind the Sale."

In the afternoon, two more group discussions are held. They may be devoted to themes like "The Supervisor's Day" or the "Managment of Time." Not all meetings cover as

VISUAL AIDS help leader put over his points with greatest impact. Among 'props' displayed here by Sales Training Manager Ritzel are a minute timer, figurines (used to illustrate riddle-type questions), a phonograph, placards and easel, slide viewer with sound track, and a pair of big dice.

wide a ground as the one just described. Special conferences may discuss a single topic.

One such project, currently in the pilot stage, would comprise one-day meetings for men who call on chain store accounts. Here, too, the plan calls for a pattern of various discussion leaders, with a different sales official opening each of the four discussion segments.

Targeted are these questions:

Who do you see besides the buyer to accomplish the different phases of a chain store call? . . . How do you make arrangements to see them? . . . How do you get acquainted with store supervisors? . . . What can you do to give your product a better chance with the buying committees? . . . In order to be completely prepared for the headquarters chain-store contact, what should you know?

In addition to the conferences, the sales training program has two other important aspects. First, there's a communication set up to make sure that all of the supervisors benefit from what was said at meetings not held in their areas.

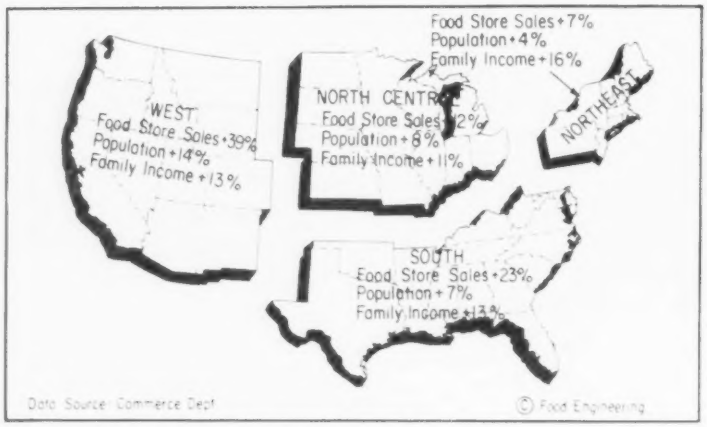
Ritzel usually assigns the assistant regional manager at each conference to keep a complete set of notes. Then when a series of eight meetings is completed, Ritzel combines the best parts from each of the eight reports he's received–supplemented by his own notes–into one overall report which is sent out to all sales regions.

This way, if one area was unable to devote as much time to, say, "The Supervisor's Function," it will still benefit from what was said about this subject at the other area sessions.

Second is the follow-through phase–an in-the-field check to find out if the supervisors are applying what they've learned.

Every meeting develops a working plan which the supervisor is expected to pass along as a guide to his salesmen. When Ritzel (or any upper-echelon sales official) goes out with a salesman, the first thing he asks to see is the man's working plan. If he doesn't have one, or if it's not up to date, the supervisor is checked to find out why.

Also, there are between-meetings contests, with the salesmen asked to describe how they solved special problems. The type and frequency of responses received from an area provide a key to how effectively the supervisor is applying what he learned in the Nestlé program. —*End.*



1953-1957 BOOM has seen food store sales expansion race ahead of population growth in all four Census regions. Nationally, food sales upsurged 17%, population expanded 9%, and median family income climbed 13%.

Map for Market Progress

New Census data give you sharp picture of regional trends in food volume as related to population and income

OFFICIAL RETURNS on 1957's retail food store sales, just released by the Census Bureau, enable you to measure your performance against that of the food industry.

And because the Bureau gives a regional breakdown of sales dating back to '53, you can see where your marketing program is staying ahead of, or falling behind, the competition.

Nationally, the retail sales in '57 surged 17.1% ahead of '53. Indicative of the industry's amazing growth, this increase outdistanced the national population gain for the same period–which was 9.2%–and probably even outpaced the rise in median family income (up 13% between '53 and '56, the last year for which regional data are available).

Despite the current furor, food prices played but a small role in the '53-'57 boom. In fact, the BLS consumer food price index in that timespan edged up a bare 2.6 points (from 112.8 to 115.4).

Regionally, there were some striking indications that population and income don't always determine the direction of food sales. And the South (see map) showed impressive market potentialities.

The sharpest expansion was registered in the West, where '57 food store sales topped '53 by 38.7%–more than double the national gain. Helping out: Increases in population (13.7%) and in median family income (13.3%).

Down South, food store sales growth exceeded the national gain–22.8% vs. 17.1%–despite a smaller-than-average population gain (only 7.2%) but an average increase in family income (13.1%).

Elsewhere, North Central enjoyed the third largest increase in food store sales–11.8%–while the Northeast trailed with a 7.3% boost. The North Central region had a bigger population rise than the Northeast –8.3% vs. 3.9%–but a smaller expansion in family income–11.4% vs. 15.7%.

Supermarkets played a key role in regional food store sales. Data from Super Market Institute show supermarket sales in the West skyrocketed 144.4% between '53 and '57, and in the South they leaped 60.4%.

The sharp gains racked up by the West brought about some shifts in regional share-of-national-food-store-sales. Northeast slid from first to second place as its share of the pie was reduced from 30.3% to 27.8%. North Central section thus edged into first place, since its chunk was squeezed from 30.2% to 28.8%.

The West grabbed off a bigger slice, up from 14.8 %to 17.5%. And the South moved up from 24.7% to 25.9%.—*FE Staff*

IN-STORE DISPLAYS, set up in parts of store where such products are not usually found, have strong buying appeal. Here, broad surface area of cereal packages is put to effective "mass display" use to trigger those extra impulse sales.

STRONG PROMOTIONS work to pre-sell consumer. Example is this contest that offers a year's supply of groceries. To encourage trade support, Quaker Oats also has prizes for retail food store operators who participate.

'Blueprinted' Teamwork Bags Profits

'Product profile' that charts course for year ahead implements Quaker Oats' successful program. Policies are carried out more effectively by integrated setup that spreads know-how among more people

SHARPSHOOTING – rather than broad shotgunning–is what it takes when your quarry is solid marketing growth. This is what many a seasoned outfit has learned, often the hard way, in the thickets of today's fast-moving food competition.

To hit the target requires the kind of advanced planning that precisely fixes your sights–shows you how to direct your fire in the never-ending battle for a larger share of the consumer's dollar.

One outfit that has been able to boom profits and ease the pressure of rising costs through this kind of planning is Quaker Oats. A comprehensive program, launched in 1953, equips the firm with: (1) An overall marketing blueprint that sets a guiding policy for each product for the year ahead, and (2) a strong marketing team that puts the policies to work in the field.

How this has paid off can be seen by two simple comparisons: Selling and administrative expenses, which had increased a painful 41% in the four years preceding the plan, have been slowed to a 33% advance in the four years since the plan went into effect. Better yet, profits, which made a puny 2.5% gain in the pre-plan period, have rocketed 44.7% in the post-plan period.

JOHN V. ZIEMBA
Associate Editor, "Food Engineering"

The Way to Do It

Quaker Oats has accomplished this by designing a marketing program that is more than mere selling –or getting orders from retailers. Specifically, the plan involves broad management-level cooperation that integrates production with marketing.

Result: Long-term sales volume that provides the highest net profit possible and nurtures the company's growth potential.

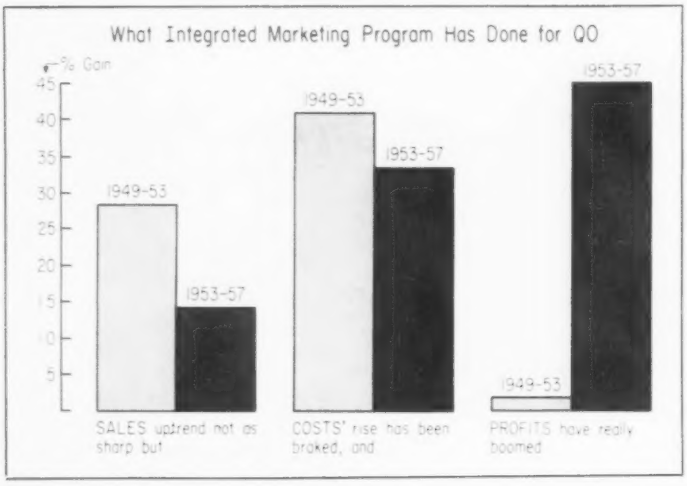
At the end of each fiscal year–June 30th–annual marketing plans are drawn up for each of the six product groups, with the cooperation of advertising agencies. The plans cover recommended expenditures and strategies to meet specific objectives, such as increasing sales and distribution, introducing new products, discontinuing out-dated products, and changing tactics in the field. This annual marketing plan is then presented, along with the suggestions, as a single-package piece for top-management approval.

This company makes a special point of keeping its ad agencies posted on product details, package design, and field operations, in order to enable them to create more effective promotions.

Here's what the company's marketing blueprint includes–points giving a basis for evaluating your own product lines:

1. **History of product**–What it is and how it's prepared.
2. **Market**–Whom it's for.
3. **Sales history**–Past performance and forecast for the future.
4. **Competitive factors**–Such as

FAMILIAR BRAND IMAGES help customer recognize products. Quaker man and Aunt Jemima symbols are among the most widely known trademarks in food industry, do a steady day in-day out selling job for Quaker Oats. Familiarity of symbols helps assure consumer confidence in QO.



can- or frozen-packed items likely to compete with, say, a carton-packed dry, non-perishable product.

5. **Consumer attitude**–Based on surveys showing how product has been purchased and used, convenience appeal, and changes in buying or eating habits.

6. **Distribution**–Relative to retail and institutional channels, and for market testing.

7. **History of ad expenditures**–Media used to reach mass consumer audience, along with other promotional aids, such as samples, coupon redemption, store material.

8. **Ad history**–How media budget has been proportioned among newspapers, magazines, radio and TV, along with data on outlays for samples, coupons, and spot films, and noting changes in copy strategy.

9. **Problems**–Those affecting market areas or wider consumer usage, poor packaging, low inventories, costs, negative attitudes toward product.

10. **Opportunities**–New products, improved uses and recipes for old products, also developing of new markets or expanding of present ones.

11. **Objectives**–To win new consumers, increase sales to present consumers, develop other markets, extend product usage by making it easier to use at home, promote use in restaurants.

Basic strategies and recommendations are group-coordinated by the sales and advertising departments and presented, as a marketing plan-book, to three top-management levels–general managers, the vice-presidents of sales and advertising and the executive committee of the company.

Carrying out this blueprint in the field is a highly centralized marketing team that combines the multiple activities of sales, advertising, commercial research, new product development, and home economics departments. Sales and advertising departments are parallel organizations, each with six product managers reporting to a general manager who, in turn, is responsible to a department vice-president for sales and advertising.

At present, products are broken up into six major groups–(1) Quaker and Mother's Oats and ready-to-eat cereals, (2) Aunt Jemima pancake mixes, (3) pet foods and corn goods, (4) specialty cereals (barley, farina, etc.) (5) animal feeds, and (6) family flour and macaroni products. These group items are handled, with some cooperative duplication, by the various product sales and advertising managers.

Purpose is to pinpoint authority and responsibilities and to weld sales and advertising into an efficient marketing team–sometimes doubling in brass. What's more, each product manager can carry out his own methods of operation, control, and communication. Too, sales and advertising experiences offer different approaches to the marketing job. Sales and advertising managers get to know more about one another's problems and complexities, thereby, come to a closer understanding.

There's a direct pipeline between marketing and production through a production coordinator who channels management decisions on marketing project to manufacturing. Such projects may deal with production scheduling, costs, requirements, and inventory. And marketing, along with production, seeks to determine if these projects are workable.

To remain more competitive, the company intensified its new product program about two years ago with a separate product development department. Besides initiating new product projects, this department follows them through from idea-stage to market testing and production. Here, too, projects are funneled into production by a coordinator.

Working in close harmony, product managers are responsible for

planning, presenting, and executing the complete program. Helping them to do all this are commercial research, home economics, production, new product development, and other departments.

Marketing people know all about a product before it comes off the production line. They're familiar with details on how it's processed and packaged, and the reasons behind its label design. This way, they're in a better position to work out efficient marketing, distributing, and advertising plans.

Sales, working with advertising, is chiefly concerned with guiding the field force to achieve marketing goals.

While advertising, on the other hand, has basic responsibilities for marketing plans, it works side by side with sales in the market development, studying the competitive situation, and determining if the company's share-of-market is a good one.

Geographic sales and product distribution are analyzed, as well as customer buying, consuming habits, and product features. Finally, advertising plans and budgets are set up and recommended for approval by advertising and sales vice-presidents.

Package design is the joint responsibility of several members of the team. If it's a matter of updating an existing design, the ad department starts the ball rolling, then works with sales, market research, product development, and the ad agency. If the package is for a completely new product, these same departments work on it, except that this time an outside design consultant is also called in.

Many Benefits

Now to the gains: For one thing, inter-department communication is much better. Each department, more familiar with one another's operations and problems, can now carry out its own job more effectively, as well as help out one another.

For example, sales knows what advertising does, and advertising understands sales' activities and pricing problems. And, as stated, agencies learn more about the company's product and how they're manufactured. This way, difficult problems and decisions are easier to solve.

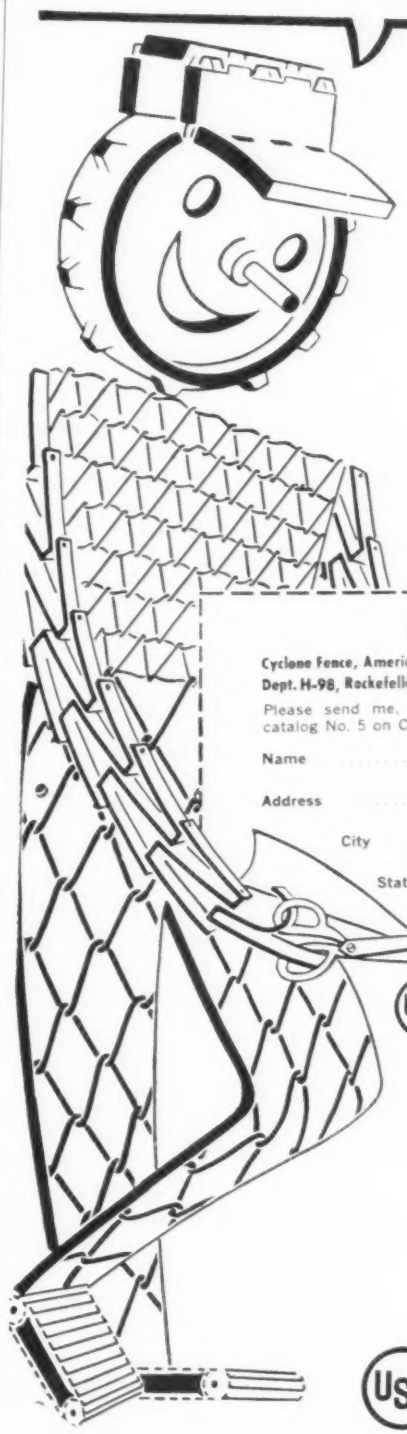
A continuous yearly record of agreements and courses of action by the group is therefore reached.

The annual plan is flexible, designed to cut down on unnecessary changes born of short-range thinking.

Say, for example, one of the company's sales divisions call in about insufficient media coverage of a

CY BELT says

"Let me show you how to save handling time!"



UNQUESTIONABLY it costs you time—and a lot of money—to move materials through your production line. Have you ever figured out how much time and expense you could save by eliminating as much manual handling as possible? A Cyclone Conveyor Belt representative will be happy to help you analyse your present methods, without obligation to you. And his suggestions will be tailored to *your* plant and *your* product. Cyclone Conveyor Belts are available in many sizes, designs and materials. We'd like to send you a free illustrated catalog showing Cyclone's complete line of belts. Just fill in the coupon.

Clip and Mail

Cyclone Fence, American Steel & Wire
Dept. H-98, Rockefeller Bldg., Cleveland 13, Ohio

Please send me, without obligation, a copy of your catalog No. 5 on Cyclone Processing Belts.

Name .....

Address .....

City .....

State .....

USS **Cyclone Metal Conveyor Belts**

Spiral Woven
Flat Wire
Flex-Grid

USS and Cyclone are registered trademarks

Cyclone Fence Dept.
American Steel & Wire
Division of
USS **United States Steel**

product or the appearance of a new competitive product. Alternate counter-actions, based on the annual marketing plan book, can quickly be put into effect.

In event of personnel changes, new members in the group can, by studying the annual plan, easily and quickly become familiar with products, problems, and the various responsibilities.

Besides helping to increase profits and put a lid on rising costs, the marketing program also enables the company to directly promote new products, cutting out time lost through unnecessary discussion. Marketing decisions are made—and carried out—more rapidly. And, finally, better information is assembled through the more efficient system of communication. With increased knowledge comes greater confidence.

Rating the Program

Unit costs for sales, advertising, processing, etc., are set up on a year-by-year basis. Sales volume alone is not the only gage in evaluating the efforts of the marketing group.

The marketing operation group is simply given the go-ahead sign on the basis of an annual budget. Executive group takes a long-term (5 or 10 yr.) attitude toward product groups by considering marketing successes or failure.

Looking to the future, Quaker Oats believes that there's an opportunity for even more efficient management of the overlapping areas in marketing. It also feels that constant analysis is in order as a means of determining the relative influences, by individual product, of wholesaler, retailer, and final consumer. —*End*

CASE HISTORY OF MONTH

From files of National Consumer Panel Division of Market Research Corp. of America. Material is factually correct. Identities of product and companies have been masked to insure anonymity.—The Editors

Keeping Ahead of Competitive Deals

Management's problem

We are a leading brand in a highly competitive convenience item category. Over the past year, our competition has greatly expanded its use of various consumer deals, while we thus far have kept away from this type of offer.

This heavy competitive-deal activity is naturally a concern to us. If it is having an adverse effect, we obviously have to take appropriate counter-activity. But if we are not being hurt, there would be no point in setting up deals of our own. We cannot draw any definite conclusions from over-all sales volume because many new buyers are entering the market for this kind of product.

What steps, if any, should we take to protect ourselves?

What Would You Do?

Management's decision

A study covering the past 12 months was ordered so that we could learn the extent to which:

1. Our better customers were buying the competitive deals.
2. The competitive deals might be retarding the attraction of new buyers to our brand.

Result of action

A study of the purchase record of families in the National Consumer Panel revealed that only one particular competitive deal was being purchased in a significant quantity by our better customers. This deal offered the greatest number of "cents off" to the shopper.

Over the year, our better customers had turned in increasing numbers to this bargain, whereas deals offering the shopper a smaller value had not been purchased heavily by our better customers.

Also, it was found that the availability of all types of competitive deals tended to slow up the rate of new customers buying our brand. As such availability increased, the number of new customers obtained by our brand decreased.

On the basis of these findings, management concluded that counteractions were required to offset the competitive activities of the deal offering the greatest number of "cents off."

The other competitive deals were not considered a serious problem. Moreover, in view of the effect the deals had on our ability to attract new customers, it was felt necessary to consider specific measures to increase our number of new buyers.

For more information, write to Case-History Editor, FOOD ENGINEERING, 330 W. 42nd St., New York 36, N. Y. Your inquiry will be directed to source of case-history item.

For more data, circle 289 on Reader Service Card →

You name it...

STANGE

will season it better!

. . . because with Stange, seasoning is both a science and an art: Science —in processing the basic seasonings: Art—in the application of these seasonings to your products to achieve distinction in their field for flavor and eye-appeal.

STANGE

TALENT TO CREATE

SKILL TO PRODUCE

FLEXIBILITY TO FIT YOUR NEEDS

WM. J. STANGE CO., Chicago 12, Ill. • Paterson 4, N. J. • Oakland 21, Calif.
Canada: Stange-Pemberton, Ltd., Toronto, Ont. • Mexico: Stange-Pesa, S.A., Mexico City

50-A MICROGROUND SPICE • NDGA ANTIOXIDANT
CREAM OF SPICE SOLUBLE SEASONING • GROUND SPICE
PEACOCK BRAND CERTIFIED FOOD COLOR

Printed in U.S.A.

MARKETING SIGNALS

Shape Service to Market

You hear a lot about 'product mix' today as a key factor in profit-making. But it's 'distribution mix' that influences selling costs.

Because markets differ, distribution service must be geared to the specific territory. Such is the objective of Curtiss Candy's new marketing setup that tailors distribution to the specific market.

Curtiss uses either truck-route or direct selling, depending on what market research shows to be the best method for a local area. Truck sales have proved effective for small towns and rural areas, with direct selling best for major chains and jobbers in metropolitan regions.

Controlling Warehouse Costs

Centralized buying by chain organizations and construction of storage facilities by food store groups are forcing manufacturers to review their own warehouse networks. Tendency now is to shave warehousing costs by spotting branch outlets more strategically so that fewer plants are needed for holding inventory.

This is especially true in the meat field—Armour closed down 26 branch units last year, Swift 23. Both firms expect to shut down more units in '58 as part of a long-range consolidation program.

Armour has been able to carry this out through more advance selling of fresh meats to big-volume buyers, which reduces the need for inventory storage space. New company units now serve as transfer points, with shipments thus switched into local delivery without being warehoused, thus reducing handling costs.

Sharpening Credit as a Sales Tool

Up-to-date credit policies can help you boost sales earnings, according to Edwin B. Moran, v.-p. of National Assn. of Credit Management. He told the Graduate School of Sales Management at Rutgers U. that proper understanding of a company's credit and collection helps the salesman to advance good customer relations as well as develop marginal accounts.

Common Market Opportunities

Europe's Common Market—France, West Germany, Italy, Belgium, Netherlands, and Luxembourg—opens up new opportunities for American firms seeking to expand overseas sales. So reports S. L. Goldsmith, Jr., executive director of National Sales Executives Inc., who's just back from a fact-finding tour of the area.

Because of the rearranged tariff structures that will be part of CM's organization setup, Goldsmith feels that American firms that make tieups with local food firms in those countries will be in a better position to profit from local know-how and build up their sales.

Several trends favor future growth of processed foods in the CM area. Among them, according to Goldsmith: more self-service and supermarket type stores (which give packaged products greater, importance), rising standard of living (which includes more refrigerated storage space in the home), more interest in market research that flushes out valuable data on local conditions, and a marked interest in updating selling techniques.

Marketing-Minded Kitchens

Look for more and more food firms to give their kitchen departments a greater say in marketing strategy. Reasons: The kitchens are effective tools for building a favorable image of the corporation in the minds of housewives, and their importance is increased by the need to add new products to the line.

Pillsbury recently modernized its Home Service Center (where staff has tripled since '46) with an $80,000 expansion. And General Foods' Kitchen Dept. (made up of eight specialized kitchens) will get a closer tie-in with company advertising as well as receive its own brand symbol.

BRIEFS

Grand Union's purchase of a poultry processing firm in upstate New York has industry observers wondering whether food chains wil expand their private labeling of frozen foods by going deeper into the manufacturing end.

Households with children aged 19 or younger account for 75% of the home-consumed soft drink volume in the Chicago area, reports the *Chicago Tribune* Consumer Panel.

Campaign to promote year-'round use of cranberry sauce pivots on "Natural Mate for Every Meat" theme. Ocean Spray is now kicking off a 12-months' drive.

Further expansion into Eastern markets sparked Consolidated Foods' acquisition of Orchard Hill Farms, Red Hook, N. Y., manufacturer. CF got a foothold on the Eastern Seaboard last year when it bought Phillips Packing (since renamed Coastal Foods Div.).

Multiple distribution of major beers, as result of its Blatz Brewing acquisition, is seen helping Pabst's drive to regain leadership in field.

Mass marketing of wild rice was brought nearer last month when Chun King concluded lease arrangements for 700,000 acres in Manitoba, whose 25 lakes are ideal for growing large crops of the product.

Bantam superettes, enjoy a healthy growth despite the spread of giant-size supers, are being eyed by national chains. Safeway last month opened one in New York City that will provide telephone service, delivery, and limited charge accounts.

For more data, circle 290 on Reader Service Card→

PEACOCK BRAND CERTIFIED FOOD COLOR

At Peter Paul, packaging is a team decision

Packaging plays an increasingly important role in the confectionery industry. At Peter Paul, for example, almost every major department is represented on the packaging team. And, with folding boxes continuing to be one of its most successful types of packages, Peter Paul also calls on the skill, experience and facilities of its largest suppliers, among them Federal Paper Board.

Federal produces winning packaging for famous companies in many industries. Is your Packaging Committee familiar with the ways in which we can be of service to you?

FEDERAL PAPER BOARD COMPANY, INC.

SEVENTEEN BOARD MILLS AND CARTON PLANTS FROM THE ATLANTIC SEABOARD TO THE MISSISSIPPI RIVER
EXECUTIVE OFFICES: BOGOTA, NEW JERSEY

LIQUID SEPARATION AFTER FREEZE-THAW CYCLES SHOWS NEW FREEZE-THAW RESISTANCE

FOR FROZEN MEAT PIES
FRUIT PIE FILLINGS
GRAVIES · SOUPS · SAUCES
ORIENTAL FOODS

Look at the extraordinary freeze-thaw resistance shown graphically at left. It's produced by COL-FLO, a newly improved starch thickener that resists breakdown after as many as five freeze-thaw cycles. It's a new safeguard for frozen food quality.

COL-FLO actually improves—as well as safeguards—frozen food quality. It offers:

UNRESTRAINED FLAVOR—flavors from

UNRESTRAINED FLAVOR—Flavors from appetizing meats to delicate fruits have nothing to overcome. COL-FLO never introduces undertones of cereal taste. A difference you can taste!

SPARKLING CLARITY—A crystal clear glossiness highlights appetizing natural colors. COL-FLO doesn't turn cloudy between freezing and eating. A difference you can see!

COMPARE COL-FLO—Check this smooth, short textured starch against any thickener you're now using. COL-FLO may well answer some special need in your product or process. Write if you'd like to know more, telling us something of the use you have in mind.

National
STARCH PRODUCTS INC.

750 THIRD AVENUE, NEW YORK 17
3641 WASHTENAW AVENUE, CHICAGO 32
735 BATTERY STREET, SAN FRANCISCO 11

For more data, circle 291 on Reader Service Card

GOLD-TONED FOIL container is color-keyed to chicken product that fries to golden brown. Paperboard lid, with cooking instructions and full color illustration of cooked product, is removed along with a folded aluminum sheet for browning of breaded and buttered chicken parts. Sheet is then placed over product during last stage of home cook.

Luxury-Look Package Builds

Armour rockets new product to quick success with package planning that: (1) Plays up product quality, (2) simplifies store handling, (3) eases kitchen work

BROAD-GAGE PLANNING is your best insurance for packaging success. Especially when the container must dramatize a specialty product's extra-quality and convince customers it's worth the extra pennies.

Take for instance, Armour's latest best-seller, "Pan O' Gold"—a finger-licking frozen frying chicken that's breaded and buttered and put up in a smart luxury-look convenience package. It's had the best acceptance by retailers and customers of any new product brought out by the firm, according to T. C. Gordon, general manager of Specialty Food Products division.

Three-Way Benefits

New product was conceived with unprecedented list of quality features and built-in conveniences to facilitate merchandising and to completely eliminate kitchen preparation.

But problems as to how it was to be processed, packaged, and prepared (by consumer) brought Armour's research, production, consumer service, sales, and promotion departments into the development program. Aiding, too, were the suppliers, including Pepperidge Farms (breading), Ekco-Alcoa (foil container), and Chicago Carton (container lid).

How Developed

In coming up with Pan O' Gold—second new poultry item introduced by firm to reduce kitchen chores—Armour followed its research-development policy of improving existing products or creating new ones.

Initial discussion revolved around a pre-cooked (fried) chicken vs. an uncooked, ready-to-pop-in-the-oven product. Laboratory and consumer kitchen research leaned to an uncooked product because: (1) Taste-panel tests favored the uncooked over the pre-cooked product. (2) Storage life could be extended by using butter, which has less tendency to break down than cooking fats. (3) Pre-cooked chicken was already on the market and, as far as was known, no firm was merchandising an uncooked, breaded frying chicken.

Next problem was to select a quality package that would dramatize the new product. Here, Ekco-Alcoa was contacted, and different sizes and styles (round, square, oblong) foil containers were test-tried.

Selected was a rigid, seamless, oblong (for easier case-packing and stacking in store cabinets) container, stamped from 0.005-gage foil to 1½x8x12-in. size. Each pan holds a USDA inspected 2½-lb. bird that is preselected on poultry dressing line and cut into 14 pieces, including giblets. Each piece is battered and completely coated with exclusive herb-seasoned breading developed by Pepperidge Farms.

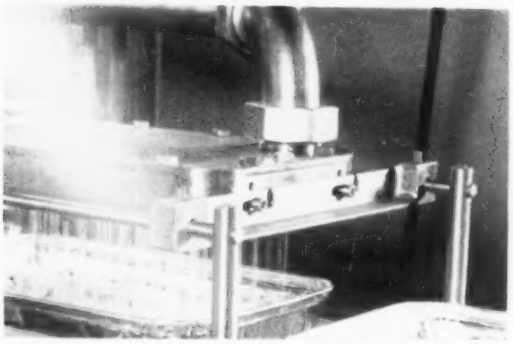
A shallow pan was chosen after much testing. It allows pieces to be single-layer packed and pan-arranged according to size to permit uniform browning and cooking. Larger pieces are hand-packed near pan edges to receive uniform heat and to allow uniform cooking of the smaller center-packed cuts.

Emphasis on Quality

The 2½-lb. size brings several benefits to retailers. For one thing, it makes for easier inventory control and faster price-marking. Also, uniform weight and pricing minimize customer re-handling.

With premium quality the objective, Armour researchers tested a

Product's Success Starts Here—



MEASURED amount of melted butter is automatically dispensed onto breaded chicken parts by battery of nozzles. Machine distributes butter in lacy pattern.

CONTAINER is hand-topped, in succession, with thin-gage foil sheet and paperboard lid. Latter is then machine-secured to pan at 50 containers per min.

Market for Specialty—Fast

wide variety of breadings from various suppliers—even made their own. After 16 breading formulas were submitted by Pepperidge Farms, they finally settled for one with freshly baked and toasted crumbs containing the desired blend of seasonings and freshly ground herbs.

Good Looks Called For

And because the top-quality product demanded a premium price, an attractively colored container was considered essential. Blue, green, red, and gold (two shades) containers were fade-tested under 400F. heat for 1½-hr. A gold hue was selected because firm's new products committee came up with a related brand name, Pan O' Gold. Also, gold-toned container promises a hidden treasure.

How the housewife could uniformly brown the chicken in the home was a problem licked by the joint efforts of research, consumer service, and production departments. Idea was to provide a folded, 0.0015-gage foil sheet (8x12 in.) beneath the full-color, paper board lid (Chicago Carton).

In the home, lid and sheet are removed during the first 55-min. part of the 400F. cook to lightly brown the product. Sheet is then unfolded and loosely placed over the chicken for the remaining 20-min. bake until product becomes fork-tender. Cooking directions were test-devised by home economists in the consumer service department.

Inasmuch as the product is not pre-cooked, research and production department got their heads together and came up with a convenient method to simulate deep-fat frying. Here's where the "bread-and-butter" idea originated.

In the plant, upper surfaces of the chicken pieces are blanketed with 2¼-oz. of 90-score fresh butter (instead of shortening). When product is cooked in the home, butter drips into the breading to form a golden crust that seals in the delicate meat juices. Shrinkage, Armour researchers and home economists showed, is only one-third of that for chicken prepared by conventional methods. Outer coating of batter, breading, and butter—a package within a package—protects flavor and quality of chicken during freezer storage.

Method of topping the pieces with butter was solved when company engineers developed an electrically operated machine which, through batteries of nozzles, automatically dispenses measured amounts of melted butter into each chicken-packed container traveling to the automatic lid-closing machine (Ekco). Uniform, lacy-like pattern of melted butter on chicken enhances product appearance, too.

Line handles about 50 containers per min., which are packed 4 or 8 to a shipping case.

There is four-way convenience in the packaging, dispensing, preparing, and table-serving. Large container, with lid carrying simple cooking instructions and full-colored cooked dish illustration, eliminates need of further printing along sides of package. Result: Shopper looks into display cabinet and sees all the printing without turning over the package.

Easily identified gold pan fits into home storage units, is easy to open, and has no sharp edges. Container's full curled vertical flange prevents housewife from cutting her fingers, adds strength to package, and improves its appearance.

Oven-cooking of the chicken in its container eliminates messy breading, deep-fat frying, and cleaning of utensils in the home. And when container's lid is removed, it serves as an attractive serving platter.

Smart Promotion

Step-wise, here's how Armour introduced Pan O'Gold in the seven original test market areas:

1. Press luncheons were sponsored by the consumer service department and brokers in each area for home economists, press, and radio-TV.

2. Intensive sampling arrange-

ments were keyed to top retail store marketing personnel.

3. In two test markets, company followed through with a concentrated ad campaign employing all media. Full-page and double-truck newspaper ads, with color display where obtainable, were employed, as well as saturation radio and TV spots.

4. Different levels of retail pricing were suggested for maximum response in specific areas.

5. Three-dimensional point-of-sale material was given to retailers.

6. Product was given specialized distribution service by brokers.

7. Consumers in some markets were offered a 50c. refund (gold-foil check) against purchase price.

So successful was this procedure that repeat purchases were made in the test areas by one-third to one-half of families surveyed. Families lauded the convenience advantages, two-thirds of them rating the product as excellent—"overall" and for "flavor and texture." Two-thirds of them also said it was "as good as" or "better than" chicken they serve.

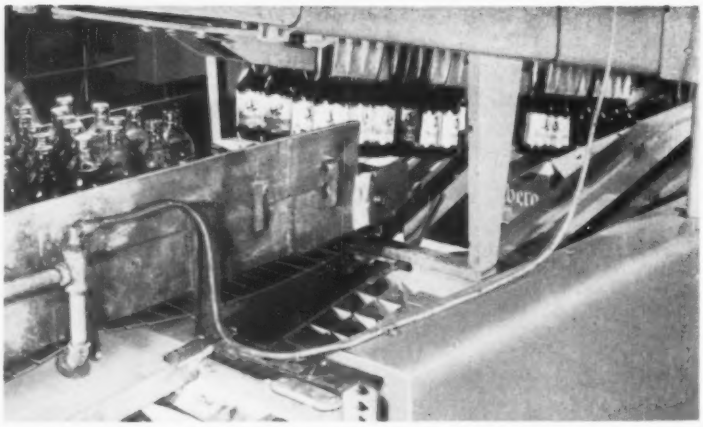
Testing in major marketing areas—Chicago, New York, Philadelphia, and Buffalo—was initiated last January. Though Pan O' Gold is one of the largest sized frozen food packages (except for pizza pies), it's racked up 80% placement in leading stores wherever it's been offered.

Armour is now "studying out" the type of advertising and promotional support needed to strongly secure the position of the product in today's eight smaller and four major metropolitan areas. Specifically, the performance of different kinds and "weights" of consumer promotion and advertising is being gaged.

Until recently, Pan O' Gold was handled by the company's Dairy, Poultry & Margarine Division. Now it is a fore-runner of a series of specialty items being promoted by the newly created Specialty Food Products Division.

This is a clue to the importance Armour places on specialty foods, which already include ready stuffed (with Pepperidge Farm dressing) fresh frozen turkeys available the year around, "Miss Wisconsin" cheese, and fresh frosted meats in consumer packages.

Armour doesn't feel the product competes price-wise with lower-cost fresh cut-up fryers. Pan O' Gold is an entirely new convenience product that supplements, rather than replaces, conventionally prepared fryers. —*FE Staff*



BOTTLES ARE LIFTED from cases as neck-grasping finger conveyor rises and case conveyor descends. Fingers place bottles on conveyor which takes them to washer.

Versatile Bottle Uncaser Reduces Work and Breakage

Gently handles several different packs at Washington brewery. Size change-over takes but 15 min.

MAN-HOURS are saved and bottle breakage reduced by a versatile, high-speed bottle uncaser at the Tacoma, Wash., plant of Heidelberg Brewing Co.

Operation of the uncaser requires only a small part of one man's time. And the unit handles 38-40 cases per min. of any "stubby" bottle. It uncases the 24-pack, 12-pack, and the four-compartment nest of cartons holding six bottles each. Changeover from one bottle size to another takes only 15 min.

Here's how the special uncaser functions.

After the end-flaps of the cartons are manually folded down, an infeed timer releases the cases onto the main pusher-bar conveyor. This moves them forward into the unit, where a plow opens the top side-flaps and folds them back so that the overhead "fingers" can descend and grasp the necks of the bottles.

The finger assembly conveyor travels in the same direction and at the same speed as the case conveyor. After the cam-actuated fingers have closed on the bottle necks, the paths of the finger assembly and case conveyors diverge. The fingers rise while the cases descend, and the bottles are gently and quietly lifted from the cases.

At the discharge end of the machine, the fingers open to deposit the bottles on a conveyor that carries them to the washer. Empty cases are meanwhile pushed onto a discharge conveyor.

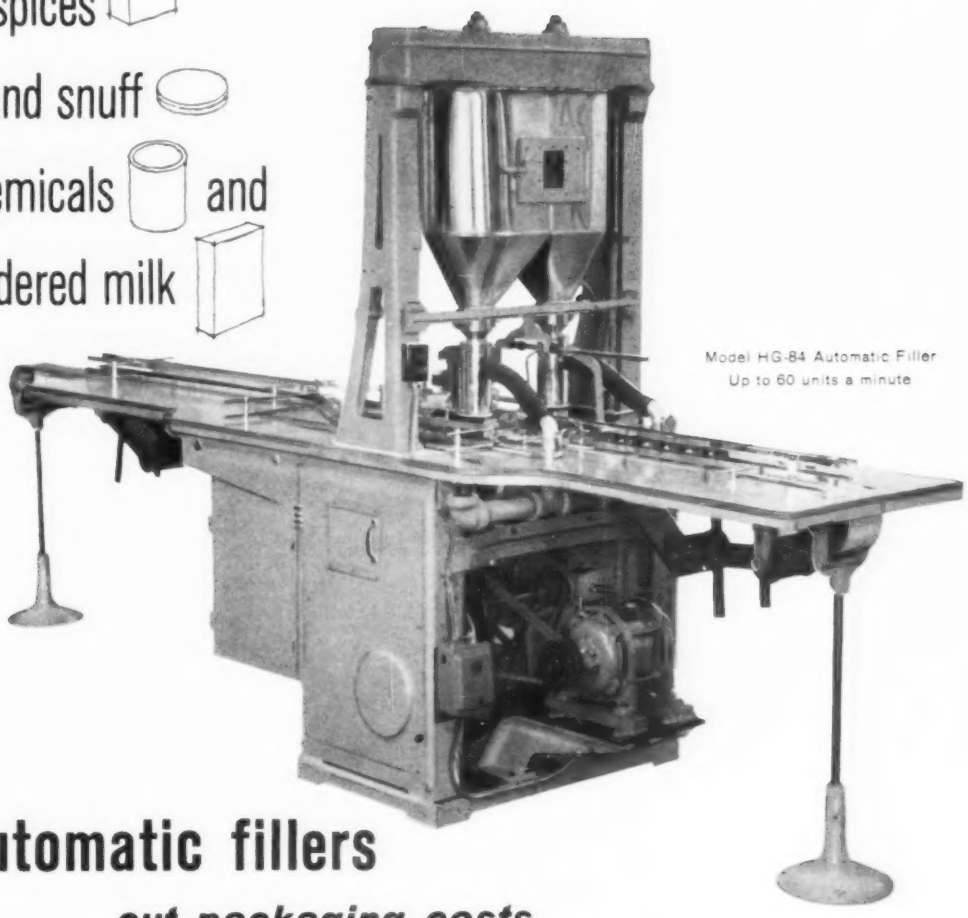
Safety-Gate Feature

To guard against bottle breakage, an in-feed safety gate stops any case in which a bottle extends above the proper height.

Further, should any case enter the machine with one of the bottles inverted or lying crosswise on other bottles, a spring-loaded platform is depressed by pressure from the finger assembly. This actuates a switch and stops the unit before harm is done. A manual over-riding control permits clearing the case for easy access to the offending bottle.

The uncaser stops automatically when the loader is filled or washer demand is satisfied. The RCA unit has an overload safety clutch and start-stop switches that are easily accessible. —*End*

from spices and snuff to chemicals and powdered milk



Model HG-84 Automatic Filler
Up to 60 units a minute

S&S Automatic fillers

cut packaging costs of "hard-to-handle" products!

If your product is a sticky or dusty powder, hard-to-handle flakes or granules . . . if you package in cans, jars, boxes or cartons . . . if you want filling accuracy of plus or minus 1% for most products . . . then you can reduce your packaging costs with the versatile Stokes & Smith line of automatic high speed fillers.

Three different filling methods are available, depending on the characteristics of your product . . . volumetric set-time, gross weighing or combination auger-vacuum. Each method delivers accurate fill automatically through a controlled auger feed. Changeover from one product or package size to another is quick and simple. Container size ranges from 1½" to 6" wide, 1½" to 4" thick, 1½" to 8" high.

Multiple-station tandem fillers are also available for speeds of up to 145 units per minute. All models require only one attendant to feed.

A few of the many companies who have purchased S&S high speed automatic fillers

American Stores Company
Avon Products, Inc.
The Borden Company
Coty, Inc.
E. I. duPont
Durkee Famous Foods, Inc.
Albert Ehlers, Inc.
R. T. French, Inc.
The Fyr-Fyter Company
General Foods Corporation
Johnson & Johnson, Inc.
Lederle Laboratories Div.
J. Martinson & Company
Wm. Montgomery Company
Pet Milk Company
Rexall Drug Company
Stanley Home Products
U. S. Tobacco Company
White House Milk Company

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

FMC Packaging Machinery Division

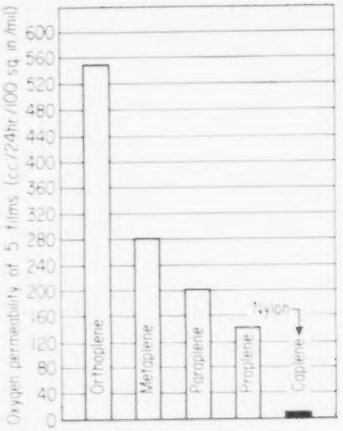
Stokes & Smith Plant
4914-S SUMMERDALE AVENUE, PHILADELPHIA 24, PA.

For more data, circle 292 on Reader Service Card

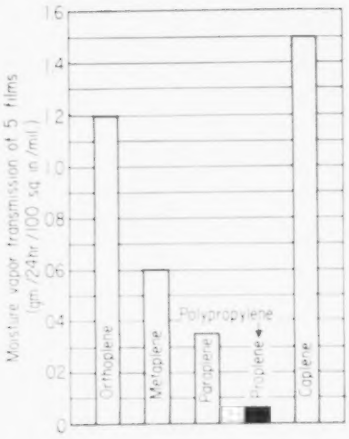
2 New Films Trigger

Competition for Polyethylene

New process readies polypropylene and nylon films. Low permeability, extreme toughness among chief benefits. . . Also, technique brings two new foamed products that do away with overwraps



NYLON FILM, debuted by Ludlow Papers, has extremely low permeability to oxygen while . . .



. . . **POLYPROPYLENE FILM** shows best protection against transmission of moisture vapor.

A GROUP of plastic films promising superior quality protection and merchandising appeal for food products—and which includes two potential competitors for polyethylene—has been introduced by Ludlow Papers' Plastic Div., Needham Hts., Mass.

The result of a new manufacturing technique developed by Ludlow, the line includes two new sheetings (a clear, high-gloss film made from Hercules' polypropylene resin, and an exceptionally tough film made from Spencer Chemical's nylon-6).

Also, there are two new thermoformable foamed products seen eliminating the need for overwraps, and three polyethylene films in the low-, medium-, and high-density categories that have unusual gloss and clarity.

These packaging materials, already put through a series of intensive tests by the maker and several food firms, will be available in pilot-plant quantities at first. By Dec. 1, however, Ludlow hopes to have them fully on stream.

Here's a rundown on the products and their potential food uses:

The polypropylene film, tradenamed "Proplene," is viewed by Ludlow as competitive with polymer-coated cellophane, Saran, some vinyls, and medium- and high-density polyethylenes. Stated to have lower gas permeability and better grease and oil resistance than polyethylene, the film is probably ideal for packaging potato chips and nuts, as well as individual servings of salad dressings.

Not as flexible as polyethylene at very low temperatures, Proplene is stiff enough for overwrap and bag impulse-sealing machines. It's characterized by good printability and long shelf-life. Pricewise, Ludlow says it will compete with Saran-coated and K-type cellos.

"Caplene," a tough film made from nylon, is expected to compete in the polyester field with such materials as Mylar and Scotchpak. It's said to be more stretchable than Mylar (especially at low temperatures), while having good tensile strength and flexibility over a wide temperature range.

The film's strong resistance to greases and oils, as well as to the passage of odors and flavors, makes it suitable for packaging products such as herbs and spices. Although it passes water vapor readily, the film is marked by exceptional clarity, Ludlow says.

Both new films are heat sealable. Furthermore, they can be boiled, sterilized, or autoclaved.

The flexible foamed products, "Orthofoam" (low density) and "Metafoam" (high density), are textured polyolefin sheetings. In addition to eliminating the need for overwraps, their printability offers exceptional design possibilities for food products, declares Ludlow.

The flexibles are expected to compete primarily with foil, laminates, and higher grades of paperboard. Thermoformable, they have insulation values and moisture-barrier effectiveness seen excellent for packaging frozen foods.

The cellular plastic sheetings are available in rolls or sheets, either neutral or colored. The Metafoam can be pigmented to make it opaque, and is boilable.

The low-, medium-, and high-density polyethylene films made from the firm's patented Flex-L manufacturing process are, respectively, "Orthoplene," "Metaplene," and "Paraplene."

Good impact resistance is expected to carve a niche for Orthoplene in the fresh produce field, where tear-proof acetate films are comparatively high on the price ladder. Furthermore, experiments are said to reveal that the film can guard foods against the deteriorating effects of fluorescent store lighting, a factor which shapes it to meat-use.

Metaplene, which is boilable, is expected to compete with MSAT cello in baked-goods packaging. And the film's high impact resistance boosts its use for bagged candy, states Ludlow.

Paraplene can be boiled, sterilized, or autoclaved, and it shows better grease and oil resistance than the other two poly films. *FE Staff*

For more data, circle 293 on Reader Service Card→

more precise uniformity than your eye can measure

Shade, pure-dye strength and composition of National Certified Food Colors are precisely standardized for unfailing uniformity in use.

For every color and blend "color-coordinates" are established against which all subsequent lots are checked. This is done with the spectrophotometer, a device far more precise than the human eye.

As a result, no ingredient you use in your product is more unvarying than National Certified Food Colors.

We will gladly put our well-equipped laboratories and 50-years' experience to work on your color formulations or re-formulations. A call to our nearest office will get prompt, intelligent action.

National®

CERTIFIED FOOD COLORS

Allied Chemical

CERTIFIED COLOR DIVISION

NATIONAL ANILINE DIVISION ALLIED CHEMICAL CORPORATION • 40 RECTOR STREET, NEW YORK 6, N. Y.

Boston Charlotte Chicago Philadelphia Portland, Ore. San Francisco Toronto

PROBLEM

Drying of heat-sensitive materials containing volatile flavors from natural and synthetic oils.

METHOD

"GENTLE-IZED" Spray Drying by NERCO-NIRO

TEST

Emulsions of oils and gum arabic solutions were spray-dried on laboratory, pilot and industrial-size spray dryers in the NERCO-NIRO Research Laboratories at Netcong, N. J. Operating conditions for optimum flavor retention through a full range of aromas, concentration and other variables were determined by the test.

PROOF

Production of spherical, free-flowing particles with stable, "locked-in" flavor proved by its superior shelf life.

APPLICATION

Food flavorings and other heat-sensitive food products can be processed the "Gentle-ized" NERCO-NIRO way with an emphasis on product quality, yield, cleanliness and economy.

For advice on your industrial food drying problem, consult our Spray Dryer Engineers without obligation.

Nerco-Niro Spray Dryer Div'n.

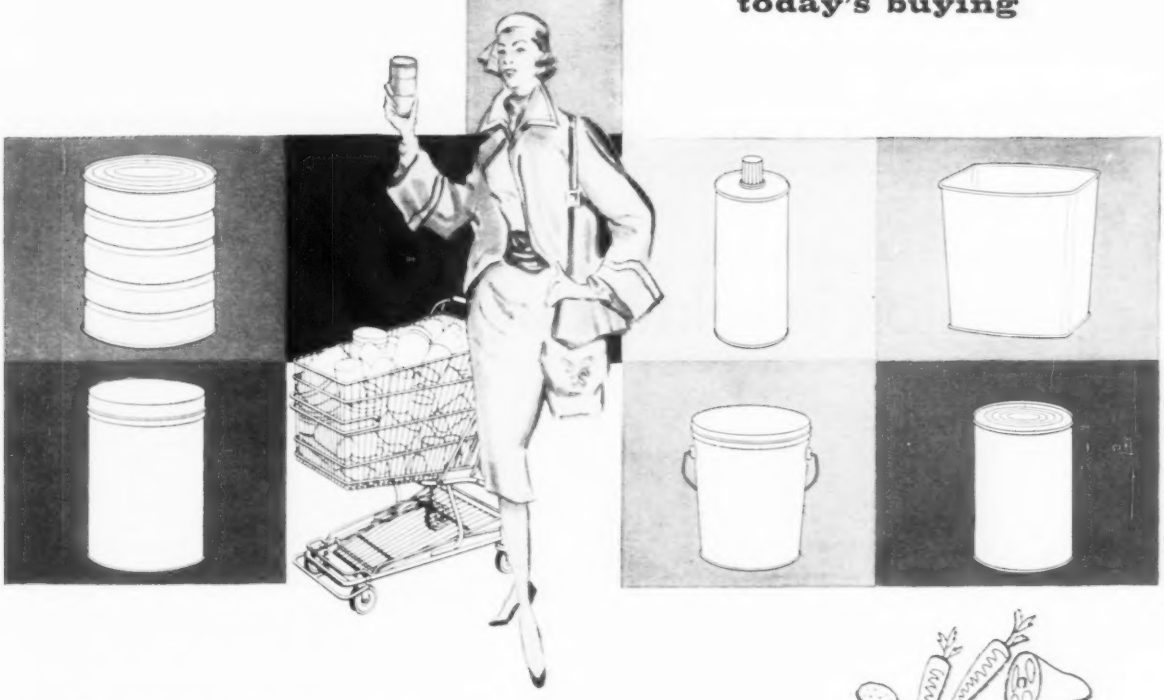
NERCO NIRO ®

NICHOLS Engineering & Research Corp.
70 Pine St., New York 5, N.Y.

Branch Offices: SAN FRANCISCO • INDIANAPOLIS • MONTREAL

Smart metal

PACKAGING . . . IS important to the young modern woman who does today's buying



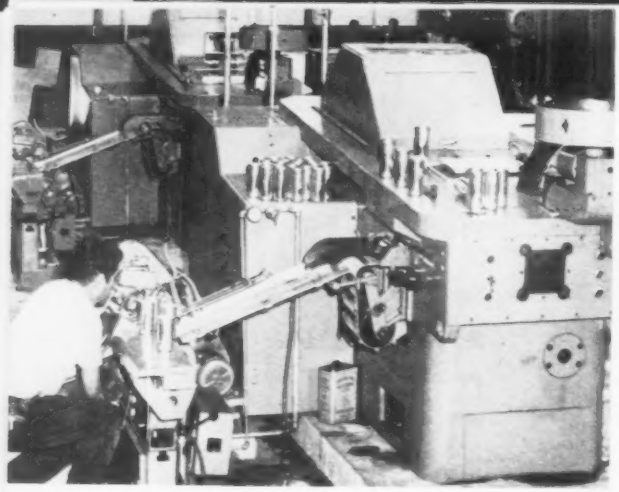
TO sell today's modern young women, your metal packages must have eye appeal . . . Heekin's market research engineers *have kept pace with modern tastes and needs* to provide smart metal packaging that sells. Heekin Cans have that eye appeal that sells. Benefit from Heekin's fifty-seven years of packaging experience.

HEEKIN
Product Planned
CANS

THE HEEKIN CAN CO.

PLANTS IN OHIO, TENNESSEE & ARKANSAS—SALES OFFICES, CINCINNATI, OHIO, SPRINGDALE, ARKANSAS

For more data, circle 295 on Reader Service Card



BATTERY OF two 400-ton impact-extrusion presses are figured to turn out 24,000 seamless aluminum beer cans a day during initial period. Operator inspects trimmer that cuts cans down to right height and flanges tops.

CUSTOM-DESIGNED filler is fed by gravity-type conveyor that brings cans from dryer and unscrambler after they've been lined and dried. Unit, along with capper (right), is completely glass-enclosed and air therein is deionized.

Major Breakthrough for Aluminum

Beer in lightweight containers helps brewer to shave distribution-packaging costs, sharpen promotion, target new markets . . . Automatic operation from can-making to case-packing

TINLESS CAN is stamped from aluminum slug. Concave disc, seamed to container's top, permits easy stacking.

Creating The Package

ALUMINUM CANS for beverages, *hovering in the wings for months, finally went on the American stage last month when an Hawaiian brewer* began marketing beer in a "tinless" can.

The credit goes to Hawaii Brewing, Honolulu.

Significantly, HB makes the cans from an impact extrusion process in its own brewing plant—in fact, it has set up an operation that is completely automatic from the time cans are formed to the time finished product is case-packed.

In addition to getting a strong headstart in a very competitive market—36 domestic brands and 6 foreign ones are sold in Hawaii, whose per capita consumption beer consumption is said to be much higher than the USA's 15.1 gal.—Hawaii Brewing expects to benefit four ways from its pioneering step:

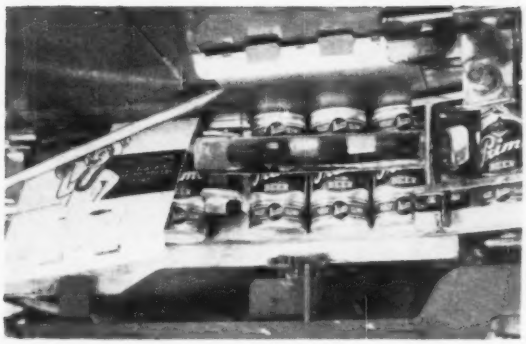
▶ **Reduced shipping costs.** In terms of gross weight, a filled case of 24/11-oz. aluminum cans weighs *20¼ lb. vs. 28 lb. for 11-oz. tin cans and 35 lb. for 12-oz. bottles (which,* until now, HB had used exclusively because of prohibitive freight charges on tin cans shipped from the states).

Even when you allow for the extra ounce in each bottle, the difference still comes to 13¼ lb. Empty, an aluminum can is about one-fourth the weight of a tin can, says the brewer, and one-sixth that of a returnable glass bottle.

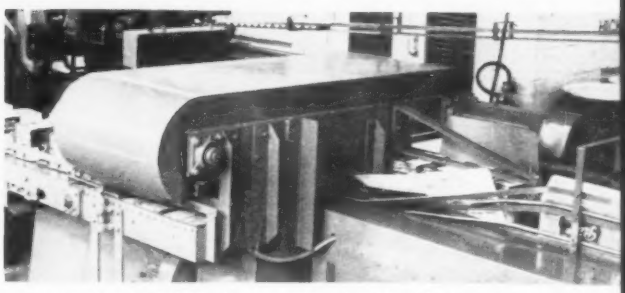
▶ **Lower packaging costs.** Savings here will come from two directions: First, the lightweight aluminum enables HB to go to a lighter shipping carton (of laminated chipboard). Second, the brewer hopes for economies through a scrap-recovery program whereby a depot (to be set up by an outside firm in Honolulu) will pay 18¢ for each 24 containers that are returned for resmelting. This figure, however, is subject to fluctuations on the world scrap market.

▶ **Hard-hitting merchandising appeal.** Printed copy on the cans, 6-pack cartons, and shipping units stress that, in aluminum, beer chills faster,

"How" of Multi-Packing Seamless Cans



CALLED FOR was new type of 6-pack carton. Can bottom is held in by inverted tabs, the top rim by slits and tabs that fit into concave heads. Here, 6-pack shell is wrapped around cans in tucking operation that joins the two flaps. From here, carton goes to . . .



. . . **SLEEVE-PACKER** that assembles four 6-packs into new "zip 'n pick" pack that splits easily down middle to form twin units. Lightweight aluminum makes extra large carton easy for shopper to carry. Printed copy on the carton stresses the new light-weight aluminum cans.

Beverage Cans

keeps cool longer. Brewer also insists that corrosion-resistant container better protects the "beer-at-the-brewery" flavor.

▶ **Opening of new markets.** HB will use the new container as a lever to: (1) Expand sales to Pacific military bases, where aluminum's non-corrosive aspects rate high, (2) step up sales in continental USA (its Primo brand is now promoted in the western states as "the Hawaiian beer"), and (3) tap new export markets in Pacific and Asiatic countries as the result of lower shipping costs.

All in all, the brewer believes the new container will help boost sales 30 to 50%.

Because all costs aren't yet known (production is only just getting underway), the brewer has set the retail case price of the aluminum cans 34¢ higher than that of bottled beer.

Another reason for the upcharge may be the $3 million that's gone into the development program—$600,000 for can-making equipment and $2,400,000 for research. The brewer hopes that, six months from now, he'll have concrete cost comparisons between the two containers.

Eventually, HB hopes to divide its output—60% aluminum, 40% glass. The latter container will be retained for those bars, cocktail lounges, and restaurants that prefer to serve beer in bottles.

The automatic can-making and filling operation utilizes special equipment developed by Aluminum International, Golden, Colo., which shared in the research program. A third participant was Adolph Coors Co., also of Golden, which expects to sell beer in aluminum cans soon.

Some of the can-making equipment—presser, internal coater, and oven—was modified by AI from German models. Other units—trimmer and washer—were built from scratch. Refinements in the German makes eliminate the hand labor.

Briefly, here's how the new system works, step-by-step:

Aluminum ingots (from Kaiser Aluminum & Chemical) are formed by AI into slugs—of 2.460-in. dia. and .140-in. thickness. This is considered the heart of the process, since analysis, texture, and dimensions must be precise if the impact-extruded cans are to do the job.

Here, AI refined an Italian continuous casting method that die-cuts the slugs from ribbon-form metal that is in a warm state.

One industry source reports that AI has succeeded in slashing the production cost of making the slugs from 14¢/lb. to 3¢/lb.

At present, slugs and lids (for can tops) are shipped to Hawaii. HB expects eventually to make its own slugs from reclaimed scrap.

In the brewer's plant, a 400-ton impact press slams the slug to form a seamless can that's .030 to .035-in. thick at the bottom and .011 to .013-in. thick in the sides. This wall is sufficient to minimize denting, the brewer says, adding that the seamless feature eliminates the problem of internal CO_2 pressure bursting side seams.

At first, the presses will turn out 24,000 cans an 8-hr. shift, but HB looks for doubling of this output with new units now being developed by AI.

Conveyor lines move the rough-edge cans to trimmers, where they're cut to right height and flanged at top. Following stop is the washer, where cans are scrubbed, etched, and dried in a 36-ft. continuous chain operation.

Next comes spray-coating of the cans on the inside with an alcohol-resistant lacquer. Cans then receive an 8-min. bake in an oven to make the coating permanent.

Because of the low flash point of the liner material, air and friction contacts are rigidly controlled at these two points.

Subsequently, the cans are gravity-fed into an unscrambler, which lines them up for proper feed to the filler, and then to a rinser which washes them off. A 50-head filler-capper injects the beer and seams the cover on in one continuous operation.

After this, cans pass through a checkweigher, then a labeller which affixes a four-color foil-paper wrap-around. It's reported that the brewer will switch to a lithographed can.

Casing is the final automatic touch—in 24-can units, 6-can homes or the firm's "zip 'n pick" pack (sleeve of four 6-packs which are easily split apart). —*FE Staff*

LACTOSE: APPLICATIONS UNLIMITED

MILK SUGAR

VERSATILE is the word for Lactose (milk sugar). New food industry uses are being reported nearly every week. There is literally no end to the product-improving applications for this low sweetening, free flowing sugar.

For example, Lactose enhances flavors. It is an excellent pigment absorbent and aroma catcher. It forms a superior dispersing agent for high-fat powders. It improves browning and caramelization. It controls sugar crystallization for superior uniformity.

Only Western offers you all forms of Lactose... 5 grades, 10 basic granulations (custom granulations, too). And you can depend on Western for prompt delivery and the uniformly high quality you need.

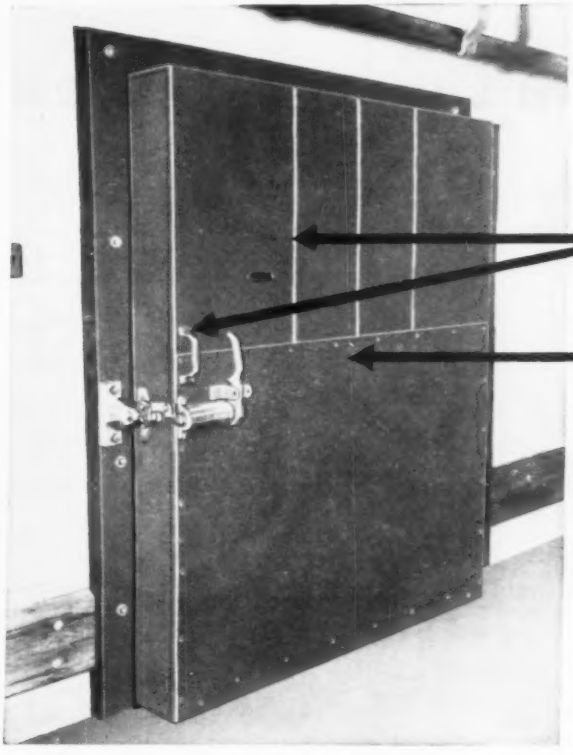
Find out how Lactose can help your product improvement program. Tell us the applications you are considering. We'll send you full information and samples. Address: Technical Service, Department 16J.

WESTERN CONDENSING COMPANY

Appleton, Wisconsin

WORLD-WIDE SUPPLIER OF HIGH-QUALITY MILK DERIVATIVES

Extra protection features for Jamison super freezer doors



batten doors and
vestibule save refrigeration

metal cladding on frame and back of door
for protection from vapor and moisture

exclusive Jamison Vap-r-tyt* construction for
protection against vapor penetration, has locked
and soldered seams and sealed bolt holes

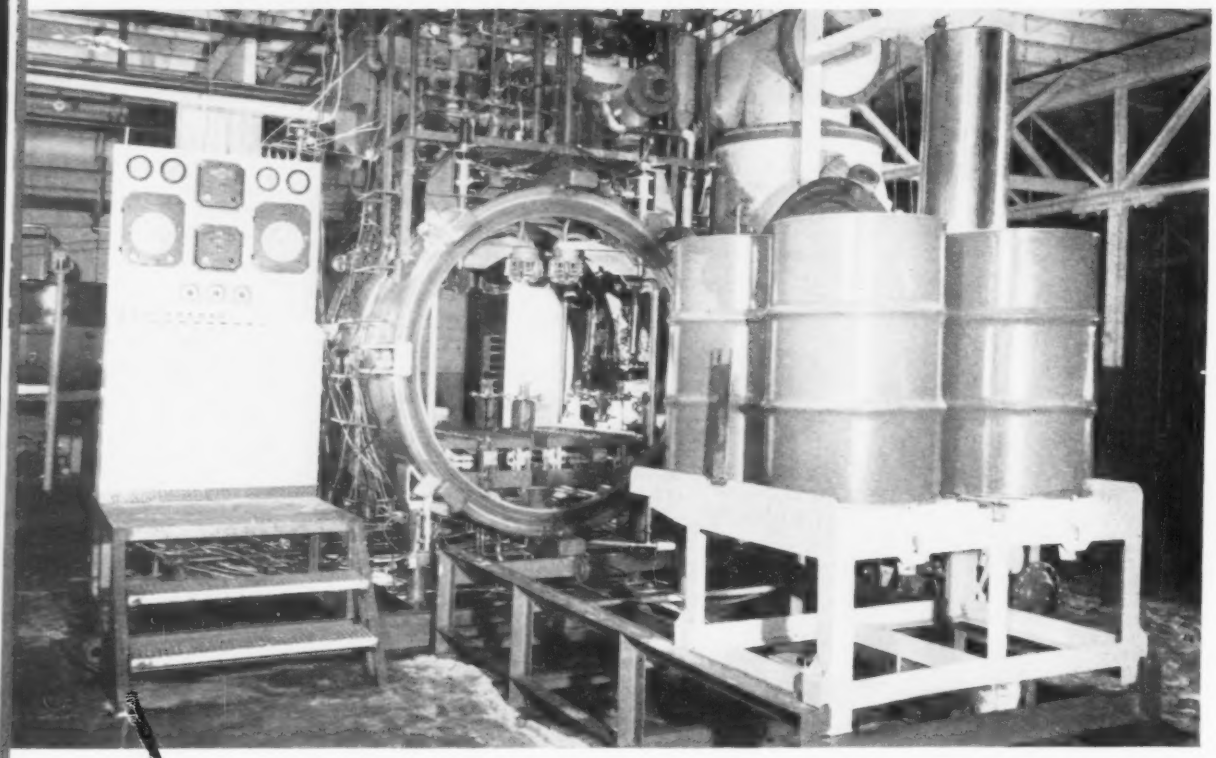
metal kick plate 48" high on frame and inside and outside of door for protection against bumping and abuse

**Vap-r-tyt is a Jamison trademark*

JAMISON

COLD STORAGE DOORS

HAGERSTOWN, MARYLAND, U. S. A.



CLOSEUP OF NEW FILLING SYSTEM. It comprises vacuum chamber (center) which is operated by pushbutton control panel (left), and vacuum cooler (behind drums). Sterile concentrate is first cooled to 90F., then filled into 55-gal. drums (4 at a time) in vacuum chamber. Drums are hermetically sealed, then discharged (foreground) on hydraulically operated carriages.

Sterile Packing in Drums Achieved

Canner joins with steel-drum maker and machinery firm to create system that cuts handling costs, protects flavor, color of bulk-packed concentrates

AGAIN imaginative engineers team with industry! This time to perfect a *new giant-size container and process*—the "Sterile-Pack System."

► **The goal: To cut direct and related costs of packaging, handling, and shipping fruit and vegetable concentrates for re-manufacture.**

And there are the gains:

1. Replacing with one drum the equivalent of 72 No. 10 (603x700) cans—the conventional container for these concentrates.

C. R. HAVIGHORST,
Senior Associate Editor, "Food Engineering"

2. Eliminating 12 fiberboard cases.

3. Perfecting a better, more economical materials handling method.

4. Economizing on warehouse space (drums may even be stored outside, if protected from freezing).

5. Saving time, since only a single drum need be opened rather than 72 cans, and

6. Minimizing loss of product left in cans after they're emptied (drum has less than ¼ the surface of the 72 cans).

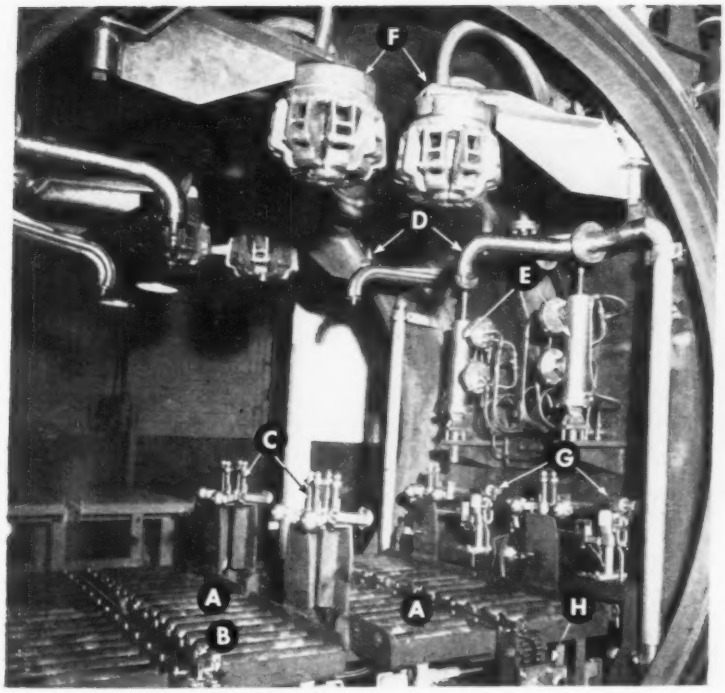
The companies that teamed to develop this system have long been familiar to FE readers:

Thornton Canning Co., Thornton, Calif., one of the West's more progressive canners. A large proportion of this company's production of concentrates is packed for re-manufacturers.

Rheem Mfg. Co., Richmond, Calif. This concern is actually the originator of the idea. Fourteen years ago it began research on development of a properly lined food-products drum that could be hermetically sealed. Envisioned was a "hot fill" process similar to the Aseptic Canning System.

Thermovac, Inc., Stockton, Calif. This company is designer and fabricator of the processing-filling unit. Earlier, it had joined with Thornton to develop the Thermovac High-Density Concentrator (FE, Jan. '56, p. 74) for tomato and fruit concentrates.

Thus the commercial size (4-drum)



INTERIOR OF FILLING CHAMBER. Roller conveyors (A) form scale platform. Chain and dogs (B) position drums against indexers (C) directly under steam-sterilizing and filling spouts (D). Spouts are operated by hydraulic rams (E). Steam-operated closure seaming chucks (F) move in horizontal and vertical planes. Scale balances (G) are pre-set to desired weight of fill. Dog (H) releases spring-loaded drum stop on carriage, permitting discharge of filled drums.

NEW 55-GAL. DRUM dwarfs previously used No. 10 can. Closure (lower right) is swedged into filling port in drum's top to produce hermetic seal.

With New Process

Sterile-Pack System, comprising the new drum and its attendant process, owes its origin to a top-rung trio of progressive companies.

Drum Is New Design

Although outwardly it resembles the traditional steel drum, the new unit is, instead, a refined and advanced container, designed especially for hermetically packing foods. The body, top, and bottom are of 18-gage steel. All elements are electroplated with tin that is six to ten times the thickness of that used for tin cans.

For additional protection, top, bottom, and closure (cap) are also lacquered. This obviates scratching or fracturing of the tin plate especially during fabrication, or when seaming the closure.

The drum's side-seam is welded during fabrication. Top and bottom are double-seamed (seaming compound is included) to the body. This specially shaped double-seam provides an adequate hermetic seal for product and headspace vacuum, usually 12-14 in. However, the drum will withstand a vacuum of 27 in.

Closure is of 24-gage steel—lighter than drum elements—to permit closure-expander to expand it by swedging action, thus locking it in the filling port. The drum is intended for concentrates ranging from 13-40% solids.

Rheem developed a drum-opener especially to remove the entire drum top. This electrically-powered unit is slung from an electric hoist. It is lowered into position on top of drum, and with head adjusted it cuts through lower edge of the double seam (that forms the chime). Then lid is lifted clear of drum.

For reasonably large shipments, sets of four drums are unitized by strapping. A wooden cross-bar, placed between the four drums, projects on two sides. Another bar with two hooks is placed over the forks of a lift truck. Latter readily attaches to projections on cross-bar, and thus the entire unit is easily transported.

Sterile Pack Process

The new process solves the thermal problem of product quality impairment resulting from filling a hot product in a large container, by first cooling it, then filling in 55-gal. sterile drums in a sterile environment.

At Thornton, four concentrates are made (tomato, apricot, peach, and pear), at various densities. Hot product (approximately 190F.) is pumped from the Thermovac concentrator to the Sterile-Pack supply tank.

After the processing chamber is charged with four empty drums, the complete filling and closing opera-

tions are performed by the electro-mechanized, robot system. It leaves nothing to chance.

In the closed chamber, drums are first sterilized, inside and out, with 100-psig. steam. Product is then pumped to vacuum cooling chamber, is flash-cooled under 29½ in. vacuum, then pumped to the four filling spouts.

It is filled by weight, to about 1¼ in. headspace, under 29 in. of vacuum. Closures are then seamed into the drums' filling ports. Next vacuum is released. And when the interior of the chamber reaches zero gage, doors are opened.

Operation Detailed

In stepwise fashion, here's how the process is operated:

First, control-panel operator energizes hydraulic and electrical systems. These are interlocked and their operations are programmed in sequence.

There are two drum-carriages—one at feed-in side, other at discharge side of processing chamber. A second operator loads four empty drums on feed carriage, and he places closures on the four closing-chucks, where they are held by five magnets. Latter are "shrouded" sintered, metallic magnets set in the closing-chucks.

Drum carriages move in unison, to or from the process chamber. The chamber is charged with four empty drums as it discharges four filled containers.

Feed-in carriage delivers drums to chamber, where they are moved inside on the roller-conveyor scale-platforms by dogs powered by a roller-chain. These dogs are spaced so that drums are delivered to the spring-loaded indexers in proper position on the platforms. Weights are pre-set on the scale balances, usually from 520 to 535 lb. Limit switches at each filling station provide for no-drum, no-fill.

After carriages are retracted, the robot controls take over to close and lock the two doors, whereupon limit switches provide the all-clear for the process to begin.

Then comes this automatic sequence: The chamber is elevated to 29 in. vacuum and the steam-sterilizing-filling spouts descend into the drum ports. Steam, at 100 psig., is introduced into the drums and chamber, and simultaneously the hogging-jet removes air from the entire system.

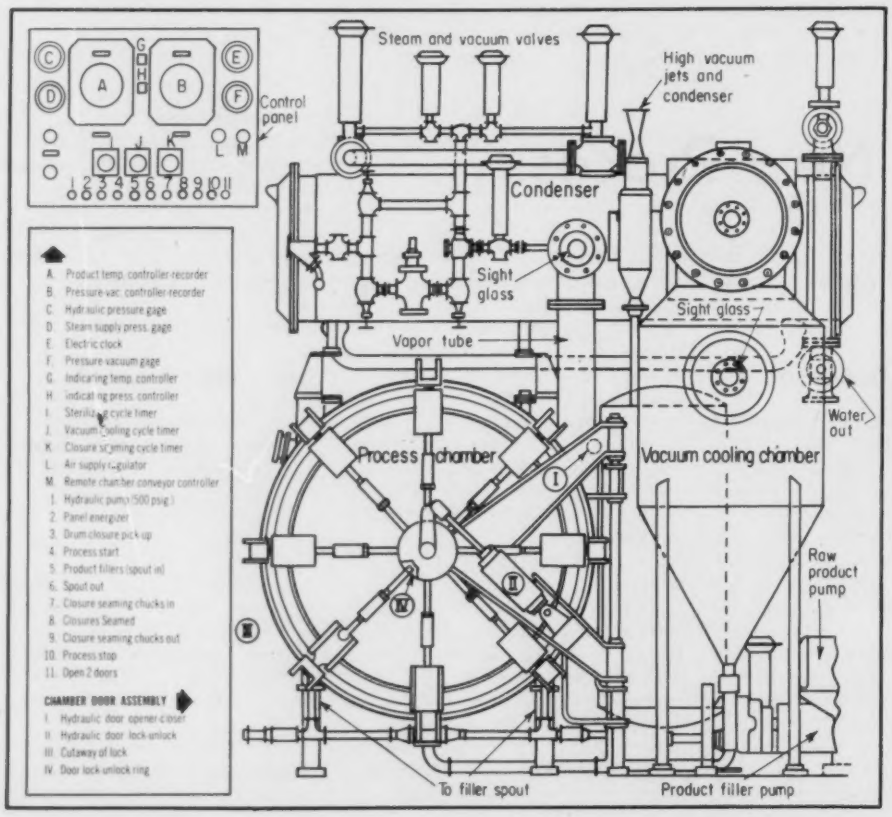
A steam pressure of 50 psig. is built-up in the entire system with continuous bleed-off, and held for a period of 1 min. Then the bleed-off is sealed, and a vacuum of 29½ in. is developed.

Hot product is pumped into the cooling-chamber and, after cooling to 90F., is pumped to the filler-spouts. Specially designed spouts insure level fill, with no mounding of the heavy concentrates.

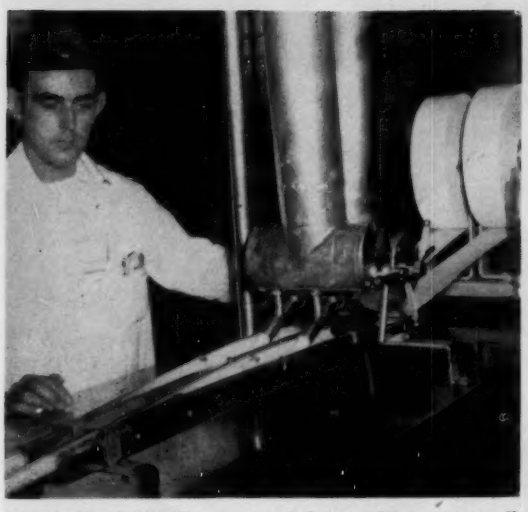
System is then pressurized with 29 in. vacuum, the sterilizing-filling spouts retract, the closing-chucks descend, and closures in each drum are seamed-in.

After these retract, and when the system reaches zero-gage pressure, the doors are unlocked and opened, and the cycle is ready to repeat.

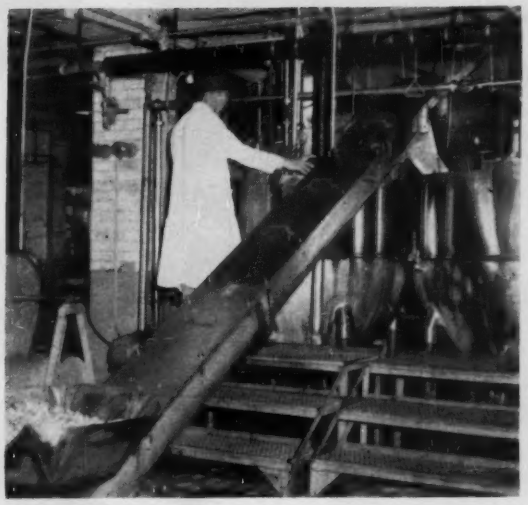
A cycle runs approximately 10-12 min. Capacity of the system is 192 drums per 8-hr. shift, equivalent to 103,000 lb.



'BLUEPRINT' of new system brings details of key features into close focus. In panel (top left) controls and gages are indicated by letters, pushbuttons by numbers.



TAMALE "ROPES" are extruded two abreast onto roll-fed sheets of parchment. Then to complete the wrap they continue through guides (left) and are later cut into 4-in. length and packed in cans.



INCLINED SCREW elevates chili ingredients from dump hopper (foreground) to kettles. Chain operated gate in housing (top right) diverts flow to desired cooker. Flour slurry is prepared in mixer (left), then pumped to kettles.

Libby Units Speed Processing

Automatic forming-wrapping machine, kettle charging system also save ingredients and labor

HOW SPECIAL Company-designed systems can save ingredients and labor, aid house-keeping, and speed production is pointedly illustrated at the Chicago plant of Libby, McNeill & Libby. Here are two examples:

Continuous Tamale Line

This equipment handles over 1,000 tamales (1.2 oz.) per min., can be quickly adjusted to change thickness of meat filling and corn meal ingredients, and requires only one operator. An additional man mixes the ingredients.

With the new system, corn meal and meat filling are separately blended in two 150-lb. mixers, each equipped with a pair of horizontal agitators. Blended batches are then discharged by hand-operated tilting gear into 200-lb.-capacity floor-level stainless steel hoppers.

Bottom of each hopper slopes to a 12-ft.-long, variable-speed auger that tapers from 9 to 4 in. dia. and feeds the continuous forming machine on the floor below. Here, the adjustable forming head extrudes (through a pair of $\frac{7}{8}$ in. dia. nozzles) 0.4 oz. of meat within 0.8 oz. of corn meal.

Tamale "ropes" drop onto roll-fed parchment papers ($3\frac{5}{8}$ in. wide) and continue through stainless guides that fold over the paper wrap (see left photo). Wrapped ropes now proceed through a pair of short chain-driven conveyors with flights on 4-in. centers that feed a 2-bladed rotary knife containing rubber cutting bars.

Individual $\frac{7}{8}$x4 in. sections drop onto a 6 in. rubber-coated, variable-speed belt that delivers them to the can packers. Here, they are packed 8 in a 16-oz. can) or 5 in an 11-oz. can. Filled cans proceed to a sauce filler, seamer, and can washer, where they are sprayed with detergent solution and rinse water.

Ingredient Feeder

For introducing chili ingredients into cooking kettles company, employs a simplified conveyor system (see right photo).

It has: (1) Reduced operators required from 5 to 3; (2) sped kettle loading by at least 20%; (3) freed the area of ingredient pans; (4) minimized spillage, and (5) eliminated chance of batching errors.

System consists of a scale that's flush with a 30-in.-dia. hopper feeding an inclined screw. This 9 in. dia. by 12 ft. long unit conveys ground meat and beans to a pair of 400-gal. steam-jacketed kettles. Discharge is diverted to desired cooker by a chain operated gate.

When beans are used in a batch, they are first soaked, then carted to the hopper in pre-weighed quantities (correct amount for a batch), thus obviating the need for weighing at this point. Ground meats, on the other hand, are brought to the scale in 400- or 800-lb. trucks and weighed into 150-lb pans for easy transfer to conveyor hopper.

A third ingredient—wheat flour slurry—is prepared in a horizontal agitator-equipped mixer and pumped into the desired cooker. Formerly it was transferred by pails.—*FE Staff*

FAST AND FLEXIBLE, PACKAGE MODEL FF

. . . will wrap nearly any size or shape

Here's the wrapping machine designed to give you both neat, attractive packages and efficient, economical production. On a Model FF, you can easily handle a full line of frozen foods and specialty items.

With its wide size range, the Model FF will wrap cartons, trays and metal-end fibre cans. Size and paper changes can be completed in minutes. Electric eye registration assures the accurate wrapper positioning that results in neat, distinctive packages. Special thermostats for both bottom and side heaters provide positive sealing.

You can get complete details on the Model FF, FF-2, U-61 or on the high-speed Model FF-H, by calling your Package representative today.

Only Model FF Gives You

Size range from 3¾" to 11½" L, 1½" to 5⅜" W, ½" to 3¼" H.

Variable speed drive permits 40 to 100 packages a minute.

Automatic feeder transfers packages from conveyor to chain feed pocket, eliminates need for special drive hook-up or manual feeding.

Special slip clutch prevents breakage in case of package jamming.

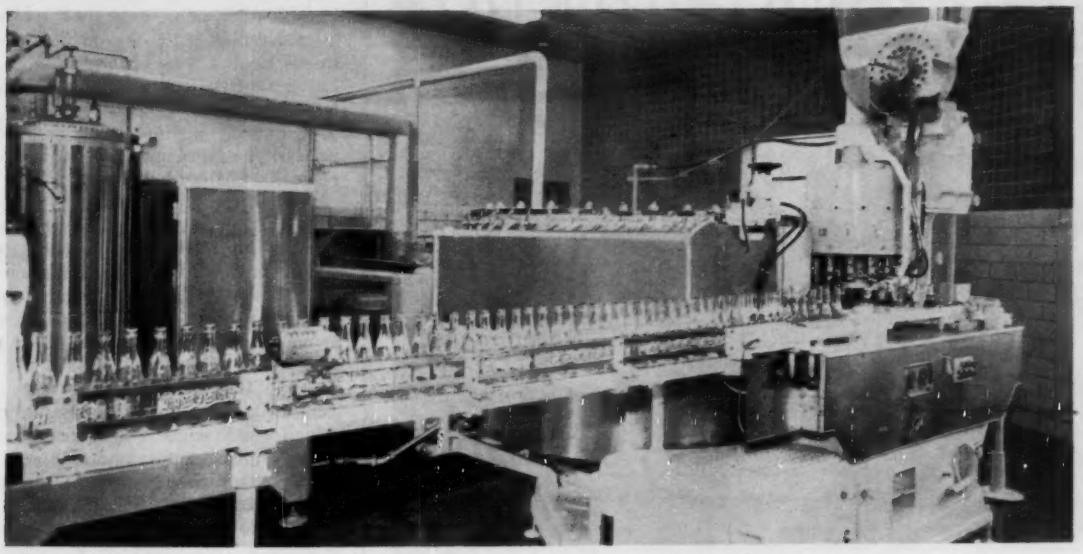
PACKAGE MACHINERY COMPANY, EAST LONGMEADOW, MASSACHUSETTS

NEW YORK • PHILADELPHIA • ATLANTA • BOSTON • CLEVELAND • CHICAGO • KANSAS CITY
DALLAS • DENVER • LOS ANGELES • SAN FRANCISCO • SEATTLE • TORONTO • MEXICO CITY

PACKAGE

PMMI

For more data, circle 298 on Reader Service Card



RED BRICK floor, beige and blue walls, pastel-colored equipment give bottling room sparkling appearance.

Color Engineering Gives Plant Big Lift

Striking pastel hues go on walls and equipment of new Westchester Pepsi facility—win immediate favorable reaction from personnel, public

ACCOLADES from both employees and visiting public attest to the popularity of the gay pastel hues used on walls and equipment in the recently opened Mt. Vernon, N. Y., plant of Westchester County Bottling Co.

Missing are the whites and grays common to most bottling plants.

Instead, walls are of beige and blue tiles, filling and conveying equipment is painted pink and blue, and pipes are yellow and pale green. Sparkling stainless steel blends subtly with the soft colors.

Showroom Plant

The new $1 million, 40,000-sq.ft., 1-story brick and cement block plant is located on a 4-acre, carefully landscaped site. Its two bottling lines were specially designed to handle the various beverage sizes and flavors put out by the company.

Flavors bottled are Pepsi-Cola, Orange Crush, Schweppes quinine water, ginger ale, and sparkling water.

Results of the color engineering far exceeded company expectations.

Employees take great pride in their new surroundings, as is indicated by the better housekeeping and generally improved morale.

As for the visiting public, there was this enthusiastic comment from President George M. O'Neil: "At our open house they appreciated getting a look at pretty Miss America—*but they left talking about the beauty of the new plant.*"

Colors Pinpointed

Color continuity extends throughout the entire filling room. For example, on the high-speed bottling line the filler-crowner is pink, cooler unit and conveyor line blue, empty bottle inspection unit yellow.

On the standard line, syruper-filler is blue, mixer and conveyors are pink.

Pipes are painted yellow from floor to machine levels, providing a splash of brightness. Above this level they are pale green.

In the remaining plant and warehouse areas, walls are of cement block spray-glazed in a biege color. This inexpensive treatment (FE Aug. '57, p. 58) provides an attractive, sanitary surface that is easily cleaned.

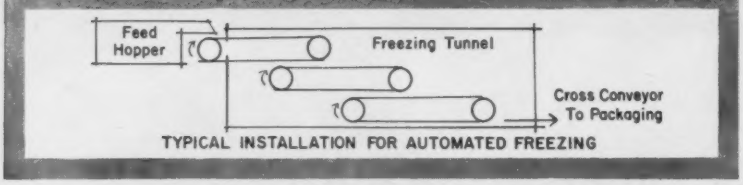
Uses Latest Equipment

The high-speed line for bottling Pepsi and Orange Crush comprises a 28-wide Ladewig bottle washer equipped with a 3-head Unimatic (Climax Products) uncaser and washer-feeder, a Crown Cork & Seal 50-spout Uni-Blend system, two RCA electronic finished beverage inspection units, a Standard-Knapp case packer, and a FMC palletizer. Capacity of line is 320 bpm. (8-oz.) or 275 bpm. (12-oz.).

The standard line is equipped with an 8-wide Ladewig bottle washer, a Crown 4-20 syruper-filler, and 12-head mixer. Due to the extreme variations in bottle sizes run on this line, casing is by hand.

ARTHUR V. GEMMILL
Senior Associate Editor, "Food Engineering"

Cambridge WIRE MESH BELTS



TYPICAL INSTALLATION FOR AUTOMATED FREEZING

All-metal belts resist sub-zero temperatures in continuous processing

Continuous freezing on Cambridge Wire Mesh Belts helps maintain capacity production and assures more uniform processing. Open mesh permits free circulation of cold air through belt and around product for fast, uniform freezing. All-metal construction is rustproof, coldproof; cannot absorb odors; a quick spray or steam cleaning maintains sanitary requirements.

In washing, inspecting, baking and cooling operation, too, Cambridge belts cut operating costs and reduce manual handling. Here's why:

CONTINUOUSLY MOVING BELTS ELIMINATE BATCH PROCESSING for faster, more economical production.

OPEN MESH PERMITS FREE DRAINAGE of wash solutions, dirt, grit; allow free heat and air circulation for uniform baking, drying.

ALL-METAL CONSTRUCTION GIVES LONGER SERVICE: there are no seams, lacers or fasteners to break or wear.

SPECIAL ATTACHMENT AVAILABLE; raised edges and cross flights hold product on belt during inclined movement.

Talk to your Cambridge FIELD ENGINEER soon—he'll explain the many advantages of continuous food processing on Cambridge Wire Mesh belts. He'll recommend the belt size, mesh or weave—and the metal or alloy—best suited to your operations. You'll find his name in the classified phone book. Or, write for FREE 130-PAGE REFERENCE MANUAL giving mesh specifications, design information and metallurgical data.

The Cambridge Wire Cloth Co.

WIRE CLOTH | METAL CONVEYOR BELTS | SPECIAL METAL FABRICATIONS

Department Q, Cambridge 9, Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

Heart of the high-speed line is the Uni-Blend system comprised of a 50- valve filler with 12 crowning cylinders, and a Tri-O-Matic blender. Latter automatically blends syrup and water in any desired proportion, in sequence mixing, cooling, and pre-carbonating. Unit then gives beverage its final carbonation and supplies it to the filler bowl.

In the operation, treated water to be used in the beverage runs through a rate control valve that insures constant flow regardless of pressure fluctuations. Then it goes through a solenoid shut-off valve and into a meter.

From the meter the flow rate is transmitted to a proportioning pump which discharges syrup into the water at a pre-determined rate. Water and syrup then move to a mixing tube. From here, the mixture discharges to the pre-carbonating and cooling section, where it is further mixed, deaerated, and partially carbonated. In this section, the mixture flows over a refrigerated surface cooler and into a supply reservoir.

Beverage is then pumped to the carbonator, where is it saturated with CO_2, then flows to the filler.

Continuous feed to the filler is assured by–

1. An electric level control on reservoir of cooler. This shuts off solenoid valve in water line–stopping flow of water and syrup–at predetermined high level, opens valve at selected low level.

2. Another electric level control in storage area of carbonator. This starts and stops pump that moves beverage from cooler reservoir.

3. A ball-float valve that maintains the level in the filler tank.

—*End*

". . . and then, gentlemen, Promotion stepped in—with the name to nourish impulse-buying motivation!"

Using Salt Efficiently

by INTERNATIONAL SALT COMPANY, INC.

Making Automatic Salt Dissolvers from Existing Plant Equipment

A great many industrial companies and public institutions are now enjoying the benefits of pure, fully saturated rock-salt brine at remarkably little cost. They have found that expensive new equipment is not needed to make this brine! Instead, International has shown them how to convert unused or unproductive plant equipment into salt dissolvers that operate under the Lixate Brine-Making Process.

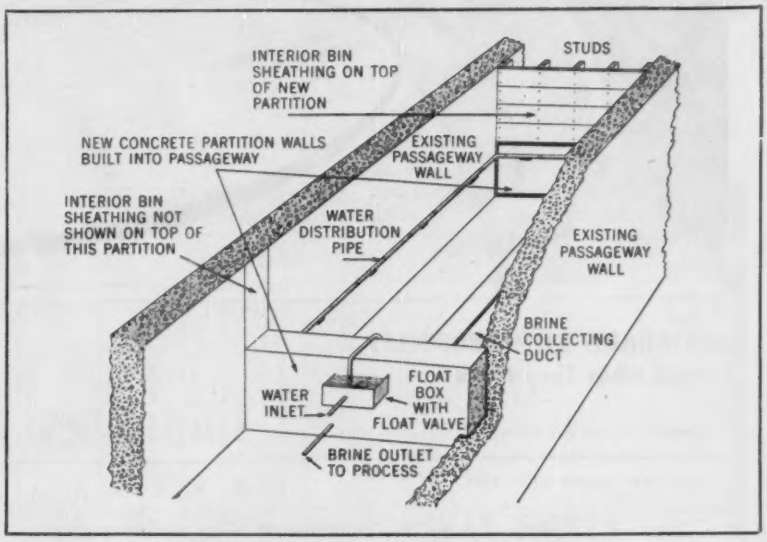
Here are four typical examples from the scores of special salt dissolvers that have been made from unused storage rooms, coal silos, locomotive tenders, dry salt bins, etc. These dissolvers, in addition to saving space, did not require expensive materials for their "construction."

Steel gas tank. Here, an unused circular steel tank under a sidewalk was converted into an underground Storage Lixator. (The Lixator is a rock-salt dissolver developed exclusively by International Salt Company.) This unusual Lixator is fully automatic, needs very little maintenance. Salt delivery is no problem at all: trucks dump Sterling Rock Salt directly through the loading hatches into the tank.

Dry salt storage bin. A few additions converted an existing dry salt storage bin into a rugged dual-unit Storage Lixator. Reinforced concrete was poured to make two 6-ft.-high salt-dissolving tanks in the bottom of the bin. Water inlet and brine discharge pipes, plus a few other necessary pieces of equipment, were installed . . . and the Lixator was ready to operate.

THE LIXATE PROCESS

. . . for making brine works like this: Sterling Rock Salt is stored in a tank called a Lixator. Water is admitted near the top. It flows *down*, dissolving salt as it goes. Soon fully saturated and unable to absorb more salt, this brine is completely self-filtered by the salt crystals in the bottom of the tank. The resulting Lixate Brine is exceptionally pure, clean, high in quality. As this brine is drawn off to points of use, more Sterling Rock Salt flows into the Lixator, and more water is admitted to produce more brine.


INTERIOR BIN SHEATHING ON TOP OF NEW PARTITION
STUDS
NEW CONCRETE PARTITION WALLS BUILT INTO PASSAGEWAY
EXISTING PASSAGEWAY WALL
INTERIOR BIN SHEATHING NOT SHOWN ON TOP OF THIS PARTITION
WATER DISTRIBUTION PIPE
EXISTING PASSAGEWAY WALL
BRINE COLLECTING DUCT
FLOAT BOX WITH FLOAT VALVE
WATER INLET
BRINE OUTLET TO PROCESS

SIMPLIFIED SCHEMATIC DIAGRAM OF A STORAGE LIXATOR BUILT INTO PASSAGEWAY WALLS

Unused basement area. A large industrial plant is now using a basement room to make clean, fully saturated Lixate Brine for water-softener regeneration. Here again, a reinforced-concrete tank makes the lower portion of the room into a watertight salt-dissolving and brine-storage unit. Dry Sterling Rock Salt is stored in the space above the salt-dissolving tank, and in the room directly over the Lixator.

Underneath a railroad trestle. One of the most dramatic Lixator installations is the conversion of the empty space under a railroad trestle. 70 ft. long, 18 ft. wide, and 12 ft. high, this extraordinary Storage Lixator can make thousands of gallons of Lixate Brine per hour. And salt delivery is entirely automatic: Sterling Rock Salt drops *directly* from railroad hopper cars on the trestle into the Lixator.

There are dozens of different Storage Lixators, converted, like the ones described here, from existing plant equipment . . . and tailored to the specific needs of each particular company. If your company could benefit from the conversion of unused space into a Lixator, be sure to contact International Salt Company. One of our experienced sales engineers can show you detailed plans of existing Lixators. He can also work with you to decide on the installation that will best meet your requirements.

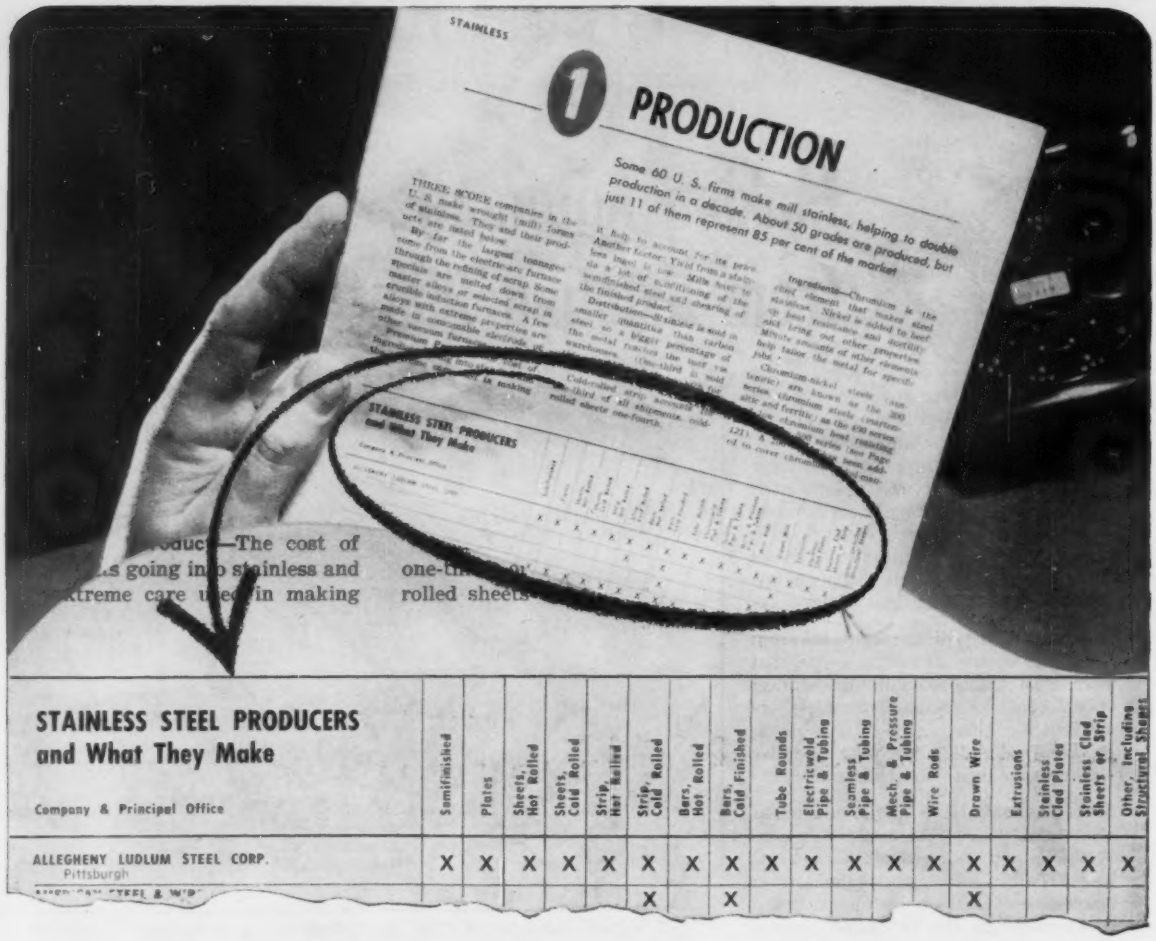
To get this impartial technical assistance, contact your nearest International sales office, or write to us direct.

INTERNATIONAL SALT CO., SCRANTON, PA.
Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; Memphis, Tenn.; and Richmond, Va.

Service and research are the extras in **STERLING SALT**
PRODUCT OF INTERNATIONAL SALT COMPANY, INC.

For more data, circle 300 on Reader Service Card

Experience**—the added alloy in **A-L Stainless, Electrical and Tool Steels


STAINLESS
1 PRODUCTION
Some 60 U. S. firms make mill stainless, helping to double production in a decade. About 50 grades are produced, but just 11 of them represent 85 per cent of the market
STAINLESS STEEL PRODUCERS and What They Make

STAINLESS STEEL PRODUCERS and What They Make Company & Principal Office	Semifinished	Plates	Sheets, Hot Rolled	Sheets, Cold Rolled	Strip, Hot Rolled	Strip, Cold Rolled	Bars, Hot Rolled	Bars, Cold Finished	Tube Rounds	Electricweld Pipe & Tubing	Seamless Pipe & Tubing	Mech. & Pressure Pipe & Tubing	Wire Rods	Drawn Wire	Extrusions	Stainless Clad Plates	Stainless Clad Sheets or Strip	Other, Including Structural Shapes
ALLEGHENY LUDLUM STEEL CORP. Pittsburgh	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
[illegible] STEEL & WIRE						X		X						X				

Of the 60 producers of stainless steel...

only ALLEGHENY LUDLUM makes all sizes, shapes, finishes and analyses

In its November 4, 1957 issue, STEEL magazine published a complete run-down on the stainless steel industry. This article reveals that *only Allegheny Ludlum*, of the 60 some companies making stainless, produces all sizes, shapes, finishes and analyses.

This can save you considerable time and money. When you make Allegheny Ludlum your *one* source of stainless, you work with *one* sales engineer—*one* order, whether you buy sheet, strip, bars, tubing or whatever.

And, at the same time, you get the best technical service. A-L's crack research and development department is continually searching for new alloys, and better ways to use today's. Its findings are freely available to you through sales engineers, technicians and special literature.

Allegheny Ludlum follows the product from the melt through to finished form, has greater quality control over the stainless you buy. And since A-L makes all forms of stainless, you get unbiased recommendations as to what is best for your individual needs.

Profit by Allegheny Ludlum's status as the only one-source integrated supplier of all stainless forms. Call your A-L representative today . . . see how he can save you money and time. Or write ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.***

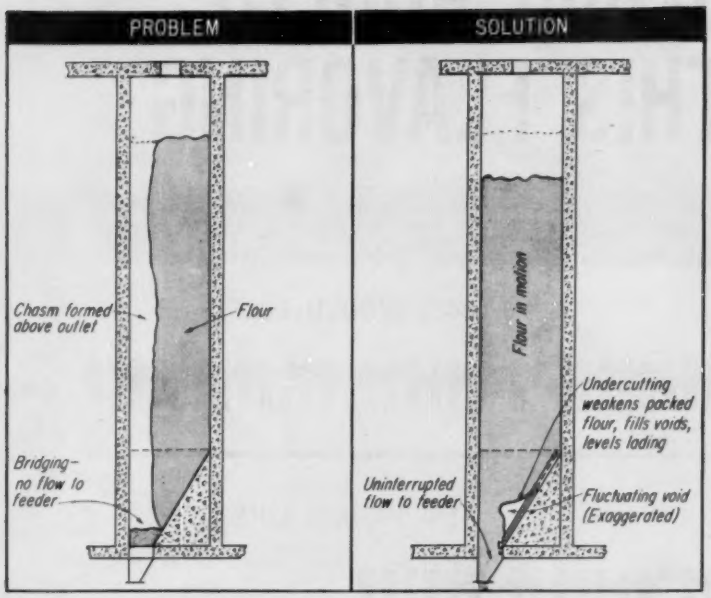
WSW 712

ALLEGHENY LUDLUM

for warehouse delivery of Allegheny Stainless, call RYERSON

Export distribution: AIRCO INTERNATIONAL

EVERY FORM OF STAINLESS . . . . EVERY HELP IN USING IT



HOPPER-DISCHARGE SMOOTHED. Problem (left): Hang-up of flour, caused by 'bridging' inside storage bin, stops the flow. Solution (right): Air probes, placed on slanting bottom of hopper, nibble at packed material, keep it free-flowing.

Speeds High-Bin Unloading

Pneumatic-probe system curbs 'bridging' of solids in 110-ft.-high hoppers by fluidizing the critical dense-packed areas. Technique also eliminates 'cascading' that often results when bridged material is broken by prodding

FLOW of bulk solids from high storage bins often comes to a standstill when product 'bridges' inside the hopper, forming a chasm above the outlet.

True, prodding usually breaks the bridge. But the resulting 'cascade' often bursts through discharge controls.

However, efficient pneumatic probes installed in each of 37 flour-storage bins at Russell Miller Milling Co., Alton, Ill., have eliminated such difficulties. Developed by Granu-Flow Systems, Ltd., Vancouver, B. C., the probe (Granu-Probe) consists of a fabric sleeve (6-9 ft. long, 4-in. dia.) fitted over a metal frame.

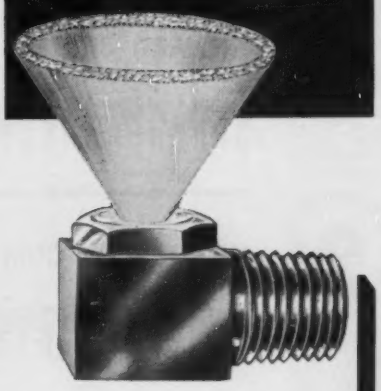
In the Alton installation, five units were placed on the slanting bottom of each 6x6-ft. bin. Upper ends of probes were lagged into the wall, lower ends being fitted into a header carrying air from a blower.

In operation, 1-psi. air escapes through the fabric sleeve into the flour. This fluidization 'nibbles' at critical areas of densely packed material in the 110-ft.-high bins. All air passing through the system is filtered and, because it is always at ambient temperature, creates no condensation problems in either the ductwork or flour.

By assuring even flow of any granular material, units permit accurate blending, reduce wear and tear on feeders and conveyors, eliminate production stoppages caused by 'hang-up' of product, and obviate the need for visual observation of bin contents.

Granu-Flow Ltd. has a sales office in Seattle.—*McGraw-Hill Pacific Coast News Bureau, San Francisco.*

LESS CLOGGING WITH Monarch



Any impurities small enough to pass through the orifice of this Fig. 629 nozzle will never clog the single large internal feed hole.

Monarch offers a full line of efficient, dependable, advanced design nozzles to . . .

- WAX FRUITS
- RINSE VEGETABLES
- POWDER MILK
- DRY EGGS
- WASH FILTER CAKE
- HUMIDIFY BANANA ROOMS

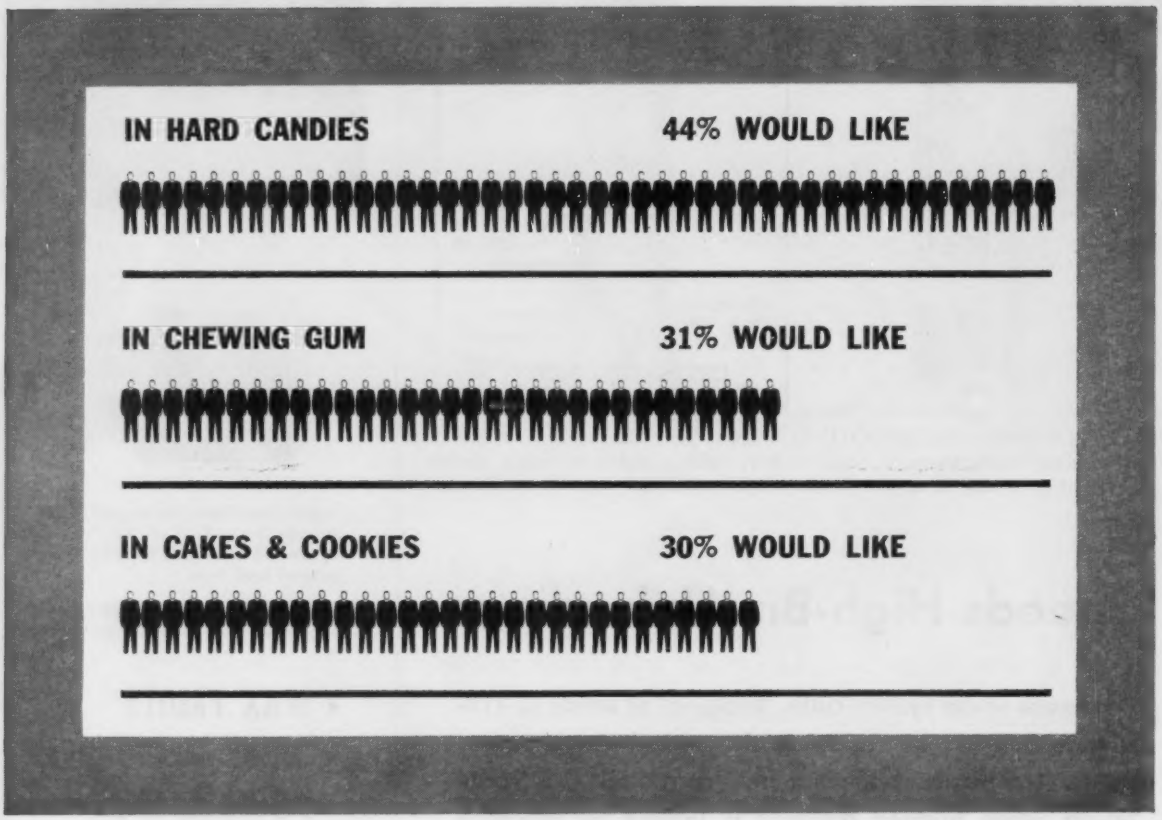
Remember . . .
Make Monarch NOZZLES standard equipment for all direct-pressure spraying.

Send for Catalog 1

Monarch
MFG. WORKS, INC.
2517 E. ONTARIO ST.
PHILADELPHIA 34, PA.

Circle 302 on Reader Service Card

34,000,000 ADULTS WANT THIS FLAVORING



Anethole is the Answer!

Wherever flavoring is important, this recent survey by the Gallup Organization is revealing new markets for anise among one out of three adults. Trained Gallup Poll interviewers determined that anise, or the closely similar flavor, licorice, is preferred by millions in a wide variety of products. Here are some additional facts from this nation-wide survey:

- 34,000,000 adults (out of an estimated 103,000,000 U. S. adult population) are real fanciers, while another 16,500,000 adults like the flavor.
- A larger proportion of the fanciers is in the upper economic group.
- Slightly more women than men like anise flavoring.
- More younger adults than older persons say that anise flavor would appeal to them.
- Anise flavoring is more popular in the East and West and in communities of over 500,000 population.
- Those who like the flavor are strongly in favor of it!

Hercules anethole, a domestic equivalent to imported anise, is produced from a plentiful domestic raw material source to meet U.S.P. specifications. Anethole represents a dependable source of supply for a high quality product. Ask your regular supplier for Hercules anethole or flavors based on anethole, and include anethole-flavored products in your line.

HERCULES® ANETHOLE

HERCULES POWDER COMPANY
INCORPORATED
Wilmington 99, Delaware

NC58-1

For more data, circle 303 on Reader Service Card

For more data, circle 304 on Reader Service Card→

open motors for extreme conditions

Save up to 60%!

Here's an amazing advance in motor technology! It's the *Super-Seal* motor line — an open motor design so completely unaffected by moisture, dust, dirt, oil, acids and alkalis that it can be used in many applications previously requiring more costly enclosed motors. *Savings range from 15 to 60%.*

Super-Seal motor superiority results from revolutionary insulating techniques. Available in any integral horsepower size, smaller *Super-Seal* motors incorporate an encapsulated stator. A durable epoxy resin encloses the stator, creating an electrical system impervious to outside elements.

In larger sizes, *Silco-Flex* insulation is used. In this system, silicone rubber is vulcanized into a homogeneous mass to form a flexible, moisture and heat resistant, void-free dielectric barrier around coils and leads.

Both of these insulation systems are unsurpassed. Proof? An encapsulated motor ran for hundreds of hours at full load in a 4% brine solution.

Find out more about new economies in motors from your A-C representative or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. *Silco-Flex and Super-Seal are Allis-Chalmers trademarks.*

ALLIS-CHALMERS A-C ALLIS-CHALMERS

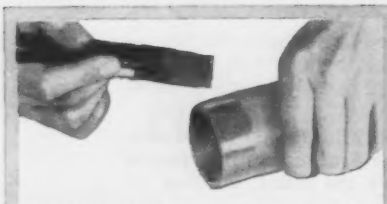
A-5802

USCOLITE PLASTIC PIPE

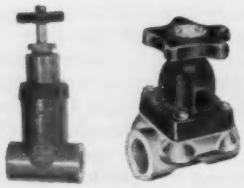
PIPE DREAMS come true!

Mr. Usco introduces the complete family of pipe, valves and fittings!

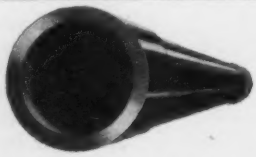
USCOLITE®, plastic pipe comes in two specific types, each equally good for its particular purpose. Uscolite CP for high impact resistance, Uscolite RV (PVC) for active oxidizing agents. Not one foot of pipe has had to be replaced in the 10 years since first installed.



USCOWELD* Fittings are the only solvent-weld fittings with an interference fit. Greater joint strength, faster insertion. Non-porous, leak-proof. Made of either Uscolite CP or RV materials.



USCO® VALVES offer a choice of either Hills-McCanna diaphragm valve or Vanton "Flex-Plug" gate valve.



USCOFLOW is a new, black utility pipe, especially suited where low first costs are a factor. It is a blend of styrene-base resin and synthetic rubber for good impact resistance and high tensile strength.

The "Usco" Plastic Pipe Line of precision-molded pipe and fittings for every corrosion and flow problem includes elbows, tees, couplings, flanges, reducing bushings, plugs, caps, nipples, bends.

When you think of plastic, think of your "U.S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality plastic pipe and fittings.

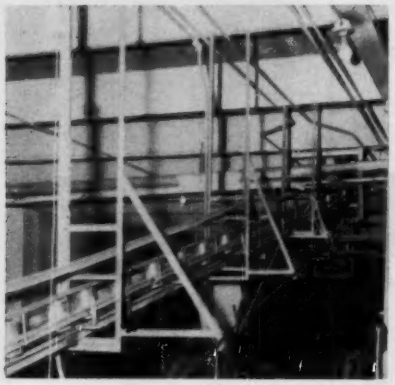
Mechanical Goods Division

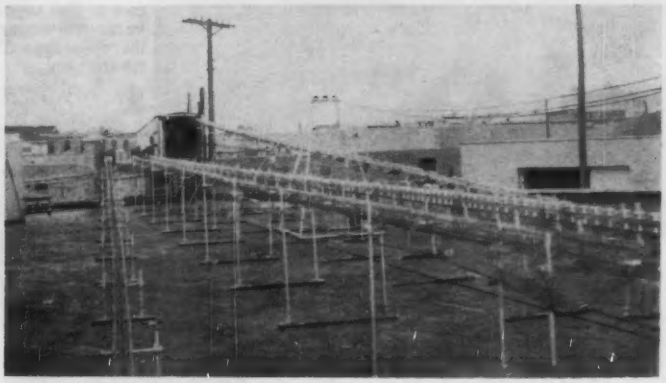
* Patent applied for

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.





Inclined conveyor (left) moves cans to roof. Then horizontal unit (right) takes them via bridge (rear) to warehouse.

Better Flow From Plant to Warehouse

Moving canned goods from cannery to warehouse can be a tough handling assignment, especially if the two units are separated by a street.

This was the situation at our plant. Yet, with help of a specially designed conveyor system, a few men are now handling the job.

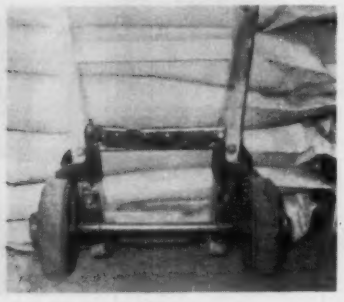
Without the conveyors, it took a fleet of fork trucks working three shifts. And both cannery and warehouse floors were crowded with men loading cans in cases and stacking them on pallets, then unloading the cases and feeding cans to labeling and case packing lines.

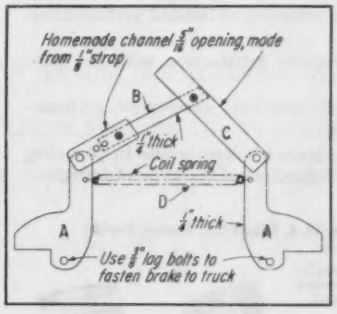
Now we move the cans by conveyor bridge from cannery to warehouse where they proceed directly to the three labeling and case-packing lines, or are stored to await future labeling.

Cans of vegetables and fruit pie fillings coming from retorts, are automatically loaded onto rotary unscramblers which discharge to chutes that feed horizontal rotary disks. These transfer the cans in upright position to company-designed incline conveyors (left photo). Conveyors consist of 3½-in. wide canvas belts above ⅜-in. wire cables. Bracket-mounted above belts at 6-in. intervals are 16-gage springs (3x7 in.) that keep them taut. Cables ride on 3-in. sheaves spaced 1-ft. apart. Belt and cables travel at same speed and elevate cans to roof, a height of 18 ft.

Here, they are transferred to a similar, but horizontal conveyor that moves them, via a 125-ft. bridge, across street to warehouse (right photo).

Cans processed in continuous cookers are conveyed to a roof-mounted, Draper-type cooler that discharges to flat top chain conveyors. These feed another across-the-street conveyor.—*Lloyd Phillips, Plant Superintendent, Michigan Fruit Canners, Inc., Benton Harbor.*





Ingenious Brake Holds Hand Truck

When loading and unloading bags from a 2-wheeled hand truck, we had trouble keeping the truck from rolling.

To overcome this difficulty, I designed a simple brake and installed it on one of the trucks (see illustrations). This brake has entirely eliminated our problem, even holding the truck on sloping floors. As a result, we are equipping all of our hand trucks with the device.

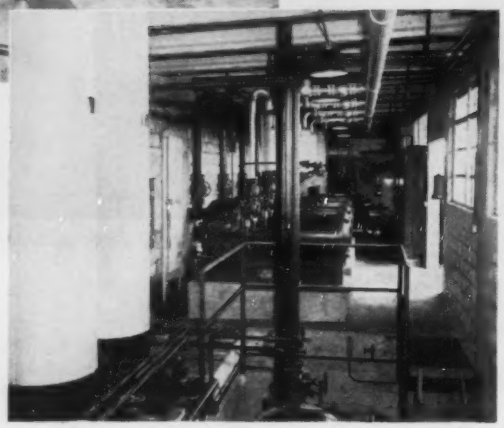
Unit is comprised of two braking plates (A in drawing) that are fastened to frame of truck by ⅜x2 in. lag screws. (Lags also act as pivots for the plates.) To braking plates are fastened two movable members (B and C) and coil spring (D).

In the "off" position, members (B and C) are at approximately the angle shown in drawing, with spring (D) pulling top of braking plates toward each other and raising braking "ears" away from the wheels, as shown in left photo.

To apply brake, operator places foot on (C) pushing it down over (B). This forces tops of braking plates (A) away from each other so that the ears ride heavily on the rubber-tired truck wheels.—*Carl J. Boettger, Maintenance Foreman, The Borden Co., New Ulm, Minn.*

(Turn page)

Shown is the 84' x 42' x 4'6" chilling tank. At the end of the tank there is a reversible conveyor so that the crates of corn or other vegetables can be conveyed either directly to the refrigerator cars or to the storage room.



Shown are four Vilter 8-cylinder ammonia compressors with 100 h.p. direct-connected motors. Control switches are installed to equalize the wear on each compressor. Vilter vertical condensers are shown in left foreground.

VILTER "Chills-in"

Sunshine Freshness of Florida Produce

Chilling-in the sunshine freshness of Florida vegetables is the task cut out for a new Vilter vegetable pre-cooling installation recently completed for Southbay Growers, Inc., of Southbay, Florida.

The plant was installed to chill locally grown produce from field temperature to about 38° to 40° in various periods of time, depending upon the product being chilled. Sweet corn and celery are the most important products. They frequently run on corn and celery simultaneously and the chilling capacity is as high as five carloads per hour . . . 2500 crates.

The principal pieces of equipment supplied for this job include four 8-cylinder Vilter ammonia VMC's, four vertical shell and tube condensers a receiver, some three miles of 2" pipe arranged as flooded vertical tank coils, and four vertical agitators.

All concerned have expressed complete satisfaction with the performance of the Vilter installation.

Vilter equipment does its job well—efficient, economical performance . . . low maintenance . . . long life.

It will pay you to talk with experienced Vilter people in planning for your refrigeration requirements. Regardless of the type of refrigeration you need, Vilter can supply you.

Sold and Installed by Vilter Distributor, W. L. Filbert Co., Miami, Florida

Write for these helpful bulletins to:
The Vilter Manufacturing Company,
Dept. E-803, 2217 S. First Street,
Milwaukee 7, Wisconsin.

Bulletin 707
Vilter Condensers
Brine Coolers
Heat Exchangers

Bulletin 817
Vilter VMC
Ammonia
Compressors

Vilter®

REFRIGERATION and AIR CONDITIONING

THE VILTER MANUFACTURING COMPANY, Milwaukee 7, Wisconsin

Air Units • Ammonia & Freon Compressors • Booster Compressors • Baudelot Coolers • Water & Brine Coolers • Blast Freezers • Evaporative & Shell & Tube Condensers • Pipe Coils • Valves & Fittings • Pakice & Polarflake Ice Machines

Practical Ideas

Double Duty Fan

Keeping ammonia fumes out of our compressor room is one thing, and letting fresh air in is another. But we now have the answer—a 24-in. fan that can pull out the fumes when a leak occurs, and then be half-turned to draw in fresh air, especially during the warm summer period.

Fan is driven by a 2-hp. motor. It's mounted in an angle iron frame which is installed on top of a stair well (see photo). Fan is pivoted to top and bottom center of supporting frame, and is moved by turning the wheel from below.—*Henry Maas, Maintenance & Engineering Supt., Rochester Dairy Cooperative, Rochester, Minn.*

Switch Solves Door Problem

It's common practice in bakeries to employ electric-eye circuit breakers for operating sliding doors of fermenting rooms. With them, workers don't have to open and close the doors as they push dough troughs in or out of the room.

But we were faced with unnecessary opening of the doors whenever personnel passed over the "eyes" in

*A type of hard biscuit or sea bread.

*HARDTACK HAD TREMENDOUS SHELF-LIFE BUT TASTED LIKE OLD BRICKS!

Even in the non-technological past, foods were available, such as the seaman's hardtack, that would remain edible during a long period of storage. But the distance between edible and enjoyable is as vast as the ocean that Columbus crossed and today's demand is for shelf-life, convenience *and* full, fresh, natural flavor. The first two factors have been made possible by modern food processing and the pacakaging industry . . . the latter by the development of locked-in flavors. DOLCOSEAL, spray dried FLAVORS by D&O represent such locked-in flavors at their best. They will deliver, consistently, to dry, packaged food products, the original, authentic flavor in undiminished strength and quality, even after prolonged shelf life. Cake, dough and batter mixes, beverage and dessert powders, condiments and confections add to their built-in convenience advantages, the repeat-sales clincher of unsurpassed taste-appeal when made with DOLCOSEAL FLAVORS. Don't sell your convenience market customer just a sanitary version of hardtack . . . sell him a gourmet delight, via DOLCOSEAL spray dried FLAVORS!

Essentially for You

Our 159th Year of Service
DODGE & OLCOTT, INC.
180 Varick St., New York 14, N. Y.
Sales Offices in Principal Cities

D&O ESTABLISHED 1798

Essential Oils • Aromatic Chemicals
Perfume Bases • Flavor Bases • Dry Soluble Seasonings

For more data, circle 307 on Reader Service Card

Fig. 2108—Monel or Nickel "Y" Valve for 150 pounds W.P. Outside screw rising stem and yoke. Screwed ends. Flanged end or socket welding end valves can be supplied.

AGAIN AVAILABLE!

POWELL

NICKEL and MONEL* VALVES

Now that restrictions have been lifted on the manufacture of Nickel and Nickel Alloys, we have produced a wide line of NICKEL and MONEL* METAL VALVES. All are ready for immediate delivery!

When your flow control requirements call for Nickel or Monel* Metal Valves your local Powell Valve Distributor is the man to see. There's one located in all principal cities. Or write to us for complete information.

THE WM. POWELL COMPANY
Cincinnati 22, Ohio
dependable valves since 1846

*Registered Trade Name of The International Nickel Co.

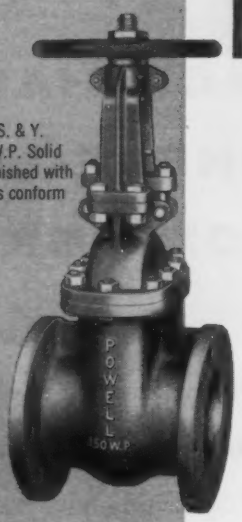
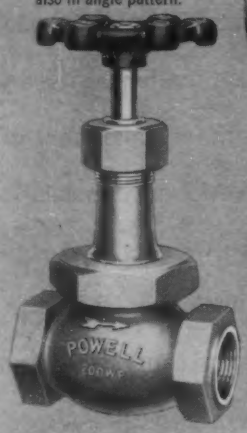


Fig. 2453 SG—Large size O.S. & Y. Gate Valve for 150 pounds W.P. Solid wedge disc. Can also be furnished with split wedge disc. Dimensions conform to latest standards.

Fig. 1836—Monel Metal
Fig. 1839—Nickel
Small Union Bonnet Globe Valve for 200 pounds W.P. Available with screwed, flanged or welding ends; also in angle pattern.



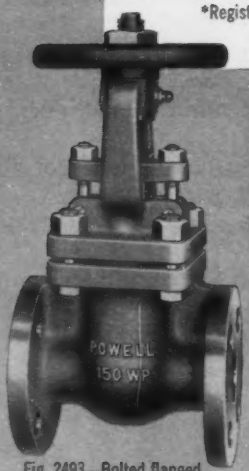


Fig. 2493—Bolted flanged bonnet Gate Valve for 150 pounds W.P. Outside screw stem rises through revolving bushing in upper yoke. Interchangeable solid or split wedge discs. Screwed or socket weld end valves also available.

Fig. 1828—Monel Metal
Fig. 1830—Nickel Inside screw rising stem Gate Valve for 200 pounds W.P. Accurately guided solid wedge disc. Also available with flanged or socket weld ends.

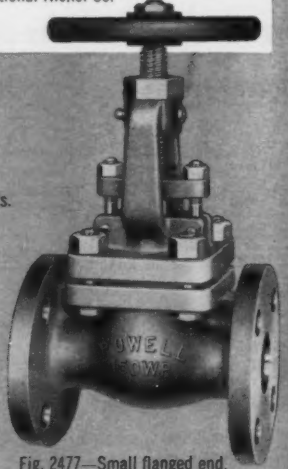


Fig. 2477—Small flanged end, outside screw rising stem and yoke Globe Valve for 150 pounds W.P. Bolted flanged bonnet. Can be furnished with screwed or socket weld ends. Angle Valves available.

Fig. 1843—Monel Metal. Fig. 1845—Nickel. Small size Check Valve for 200 pounds W.P. Screwed-in cap. Has straightway flow area through valve body when disc is in wide open position. Can also be supplied with flanged or socket weld ends.

front of the fermenter in the room.

To overcome it, we hooked up a Micro Switch to our floor-level scale (photo) and electric-eye circuit breaker. Scale is pre-set for a 300-lb. load to activate the switch then, in turn, break the circuit after trough is rolled over the "eye" beam. A timer hooked to the electric circuit hold door open for 20-sec.

After trough passes over second light (inside fermenter), door closes. Door is again opened when a worker or trough breaks this beam.—*Minos Asproyerakas, Vice President and Chief Engineer, National Baking Co., Chicago.*

Two Clean-Up Helpers

Keeping stairwells in ship-shape order was a difficult task for our clean-up crew. Wooden stairway hand rails were difficult to clean, especially in view of the fact that dough as well as shortening in dough were transferred from workers' hands to rails. And, while waste receptacles

Send FOOD ENGINEERING Your Ideas

We'll pay $5 to $15 (sometimes even more) for each contributed item used.

Just send us the facts about your idea and its application. And include a free-hand sketch or snapshot to show how it works.

We'll do the finished writing and drawing for you.

Send your idea today, before you forget. Address it to Practical Ideas Editor, FOOD ENGINEERING, 330 W. 42nd St., New York 36, N. Y.—The Editors.

KEEP YOUR PRODUCT ON THE MOVE

WITH ASHWORTH® METAL PROCESS BELTS

Woven from any metal capable of being drawn into wire form, Ashworth belts afford a conveying medium in temperatures from sub-zero to 2100°. Whatever your process—Ashworth belts can help you effect economies and . . . keep your product on the move.

Illustrated literature available.

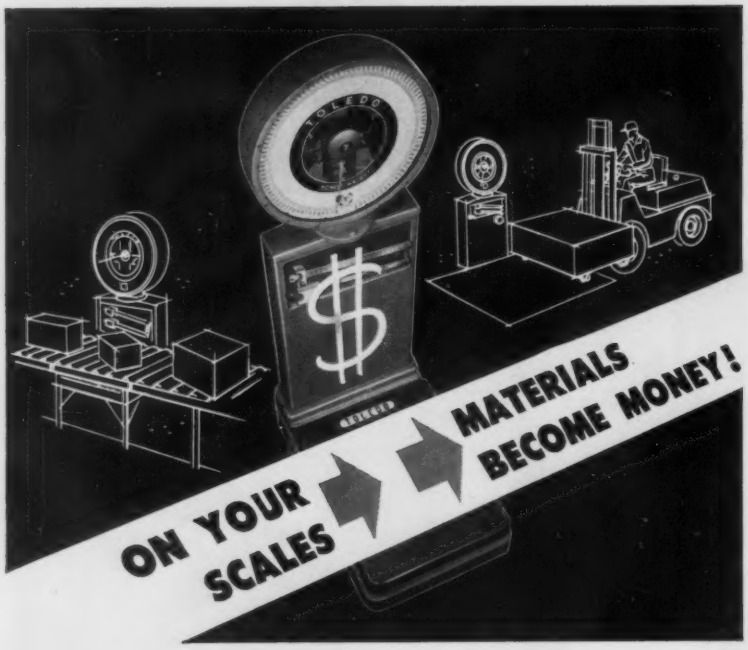
ASHWORTH BROS., INC., WINCHESTER, VIRGINIA

SALES ENGINEERS: Atlanta • Baltimore • Boston • Buffalo • Charlotte, N. C. • Chicago • Cleveland Dallas • Detroit • Fall River, Mass. • Greenville, S. C. • Louisville • New York • Philadelphia Pittsburgh • Rochester • St. Louis • St. Paul • Tampa • Canadian Rep., Peckover's Ltd., Toronto • Montreal

For more data, circle 309 on Reader Service Card

USE THE READER SERVICE CARD

It's at the back of this magazine. For free information and literature note the number appearing at the end of editorial items and advertisements. Circle this number on the Reader Service Card and drop in the mail. We do the rest—no obligation, of course. Don't fail to look over our free editorial reprint offer on the Reader Service Page.

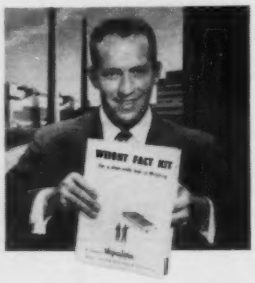


It will pay you to check now

on weighing efficiency in your plant!

For proper cost control, efficient weighing is a prime requirement. Weight records directly affect costs, quality, inventory control and customer billing. You can avoid weighing errors and inadequate weight data by placing the right scales in the right places . . . all properly integrated in a *plant-wide weighing system* to supply basic accounting records on materials received, transferred and shipped.

You can easily check up on the job your scales are now doing. Just ask for the exclusive Toledo Weight Fact Kit. A Toledoman will gladly explain how it will help you detect and correct weighing inefficiencies in your plant. REQUEST YOUR WEIGHT FACT KIT NOW. No obligation. Address Toledo Scale, 1404 Telegraph Rd., Toledo 12, Ohio.



TOLEDO SCALE *Headquarters for Weighing Systems*

DIVISION OF TOLEDO SCALE CORPORATION

SERVICE Factory-Trained 200 Cities

MOTOR TRUCK SCALE

PORTABLE SCALE

HOPPER SCALE

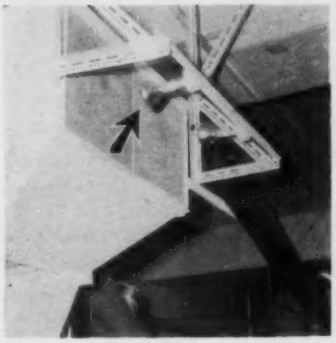
REMOTE DIGITAL WEIGHT RECORDING

Practical Ideas

were provided in stairwell corners, bits of paper, matches, cigarette butts, etc. were tossed into them but often missed and fell to the floor.

Two simple changes kept these areas neater and made work easier for our clean-up crew. First was to nail 24-gage aluminum covers (1½x3⅜ in.) to the hand rails (1 in photo).

Second was to make special triangle-shaped waste receptacles (2) that snuggly fit into corners of stairways. These 18x18x26x24 in. high cans were constructed of 18-gage galvanized iron. To prevent cutting of hands by sharp metal edges, ⅛-in. metal bars are roll-seamed over all top and bottom edges. And to facilitate handling, a metal handle is secured to front (top, center) of each receptacle. — *Ray Metzger, Maintenance Engineer, Weston Biscuit Co., Battle Creek, Mich.*

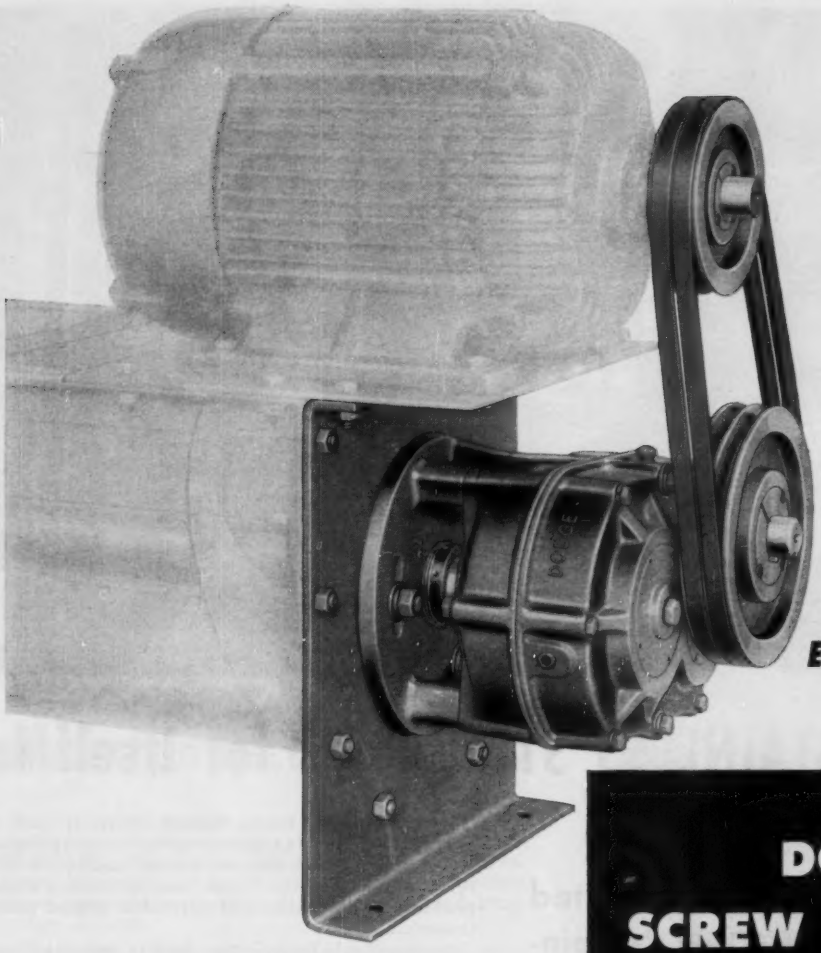


Controls Moisture Pickup

Keeping popcorn from picking up moisture and then becoming soggy was a major problem on our processing line, especially in the single 150-lb. capacity surge hopper, and the three 100-lb. packing hoppers.

Since production of potato chips is our largest volume operation, and most of the moisture is duct-removed from the fryers, it would prove too costly to isolate the popcorn operation in a separate air-conditioned room.

One measure that's helped us was to employ infra-red lamps to keep air in the hoppers low in moisture. Used, are four 200-w. infra-red bulbs —two on each side of a screened section of the surge hopper (arrows). Mounted directly above the three side-by-side packing hoppers are a total of nine 200-w. bulbs.—*Theodore A. Peszynski, Plant Superintendent, Jays Foods Inc., Chicago.*



Entirely New!

Entirely Different!

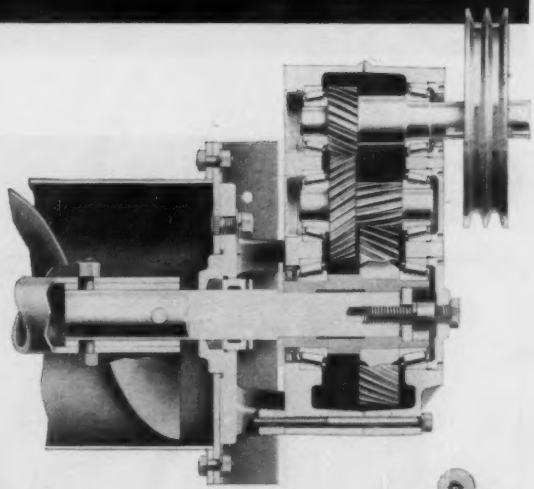
DODGE SCREW CONVEYOR DRIVE

A complete package drive, including

- **Rugged, high-efficiency Reducer.**
- **Quick-removable Driving Shaft.**
- **External Packing Gland.**
- **Trough End (optional).**

Amazing new ease of installation—new ease of maintenance—new economy! No motor base—no external thrust bearing. Pre-selected Taper-Lock V-Belt drives give required speeds. Built-in puller makes it easy to change driving shaft—without opening reducer. External packing gland protects reducer. Helical steel gears. Timken Bearing equipped throughout. Available from stock with 1½", 2", 2 7/16" and 3" driving shafts. Ask your Dodge Distributor, or write us for bulletin giving complete technical data.

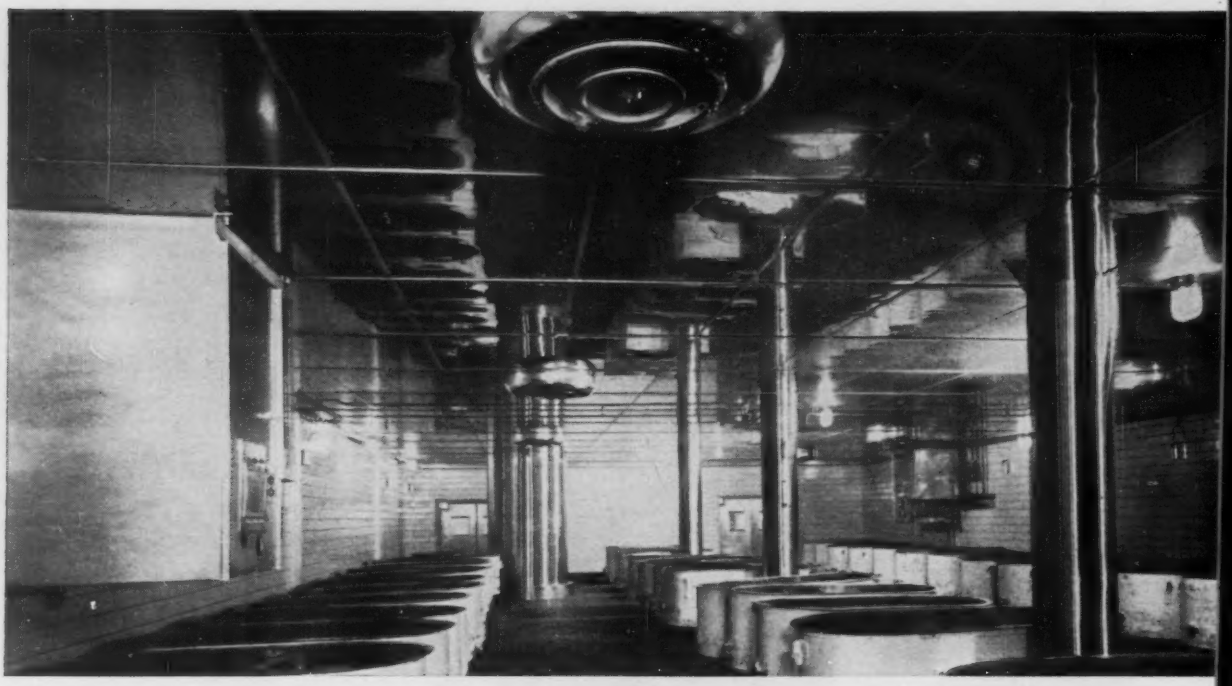
DODGE MANUFACTURING CORPORATION, 2800 Union, Mishawaka, Ind.



DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."

For more data, circle 311 on Reader Service Card



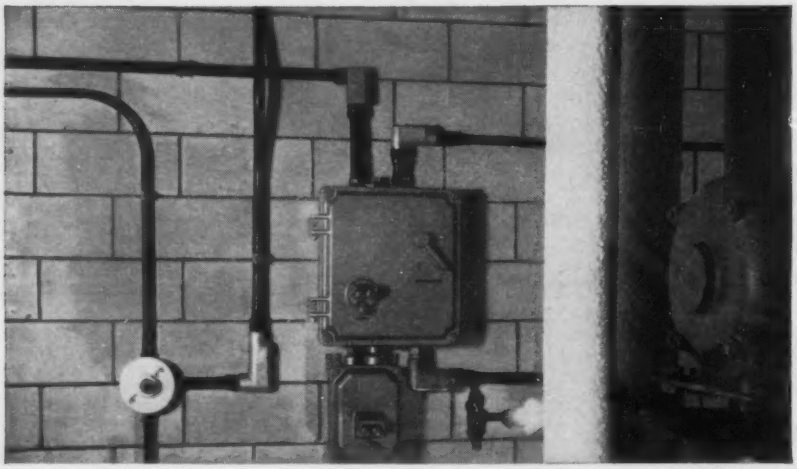
STAINLESS STEEL Pays for Itself in

Fermentation room fabricated from Republic ENDURO® Stainless Steel cuts maintenance costs, licks corrosion, assures uniform production and product.

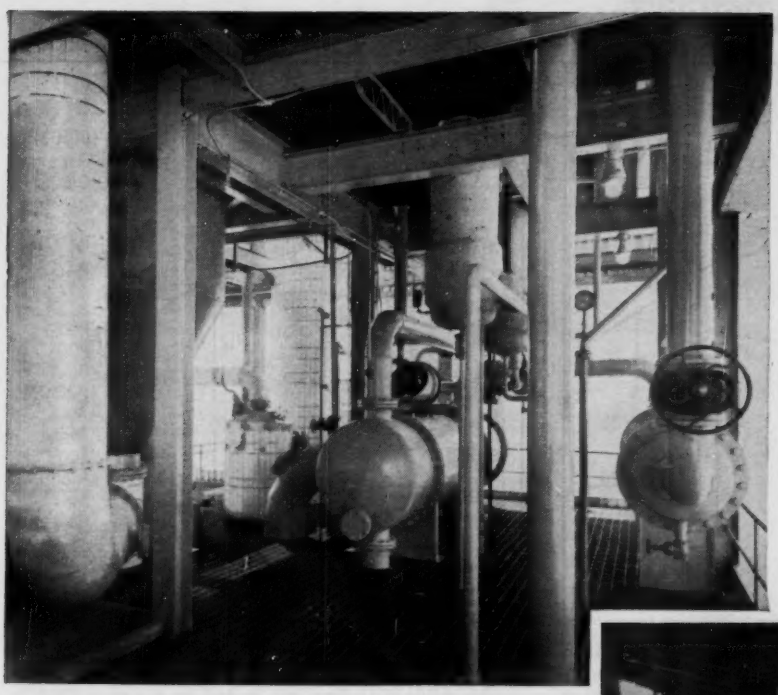
The fermentation room, shown above, is used in a cracker plant for maturing cracker sponges. Operating at 80°F. the year around and in 70-78% relative humidity, the room could present a costly problem in corrosion and corrosion-caused maintenance.

But the manufacturer, The Fred D. Pfening Company, Columbus, Ohio, designed around this problem with Republic ENDURO Stainless Steel, Type 302, for insulated ceiling panels, duct work and air conditioning equipment. This type offers excellent corrosion-resistance and is unaffected by atmospheric attack. And the fact that ENDURO is solid stainless steel means that there is no applied surface to crack, chip, flake or peel.

One major user of this type of equipment reports

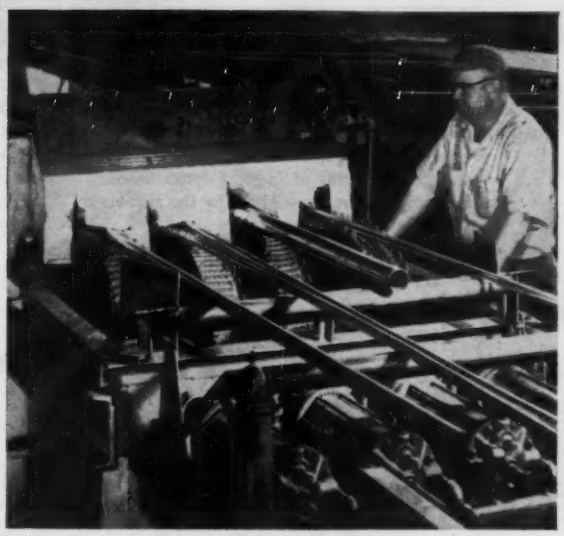


CONDUIT MAINTENANCE REDUCED TO A MINIMUM with Republic "Dekoron®-Coated" E.M.T. The corrosive action of vapors and moisture was causing rapid rusting of ordinary conduit in a cold storage plant. Replacement was frequent and costly. Then Dekoron-Coated Electrical Metallic Tubing was installed. In service for several years now, it looks as good as the day it was installed. A polyethylene coating over a galvanized finish provides double protection against excessive moisture, vapor and corrosive fumes. It can be cut to length and bent as easily as standard E.M.T. conduit. Joints are protected by plastic electrical tape. Also available in coated hot galvanized rigid steel conduit. Send coupon for details.



STAINLESS PAYS IN SOYA BEAN PROCESSING at McMillan Feed Company. In the condenser, shown above, ¾" O.D. Republic ELECTRUNITE® Stainless Steel Tubing meets the company's requirements for sanitation and corrosion-resistance. Stainless tubing eliminates the danger of metallic contamination. It is easy to clean and keep clean. Strong and durable, it saves time and money by giving maximum performance. ELECTRUNITE Stainless Tubing provides maximum resistance to temperature, pressure and physical damage. Send coupon for complete facts.

BRIGHT ANNEALED TUBING SAVES POLISHING COSTS. A new, continuous bright annealing furnace at Republic's Steel and Tube Division now makes it possible to obtain stainless tubing with a dense, lustrous finish—without paying high polishing costs. Tubing is produced with a hard, high-quality finish in sizes ¼" through 4" O.D. Formed from Republic ENDURO Stainless Steel, every foot of tubing has uniform wall thickness, is perfectly concentric, meets all requirements of ASTM and ASME. Mail coupon for more information.



Maintenance Savings

that their cost records prove stainless steel pays for itself in maintenance savings alone in just six years. Compared to less versatile materials that require frequent painting and other protective coatings, stainless is an investment in reduced maintenance and long-range savings.

Shouldn't you be enjoying all the benefits of stainless steel in your processing operation? Republic field metallurgists are ready to work with you and your equipment-supplier in applying the many available ENDURO Stainless Steel analyses to best advantage. Just mail the coupon.

The advantages of stainless steel are brought to you by Republic in behalf of the stainless steel process equipment manufacturers and the independent steel distributors (local steel service centers) who supply them.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

REPUBLIC STEEL CORPORATION
DEPT. FE-5137
1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

☐ Have a stainless steel metallurgist call.
Send more information on:
☐ ENDURO Stainless Steel
☐ Bright Annealed Tubing
☐ ELECTRUNITE Stainless Steel Tubing
☐ Dekoron-Coated E.M.T.

Name_____ Title_____
Company_____
Address_____
City_____ Zone____ State_____

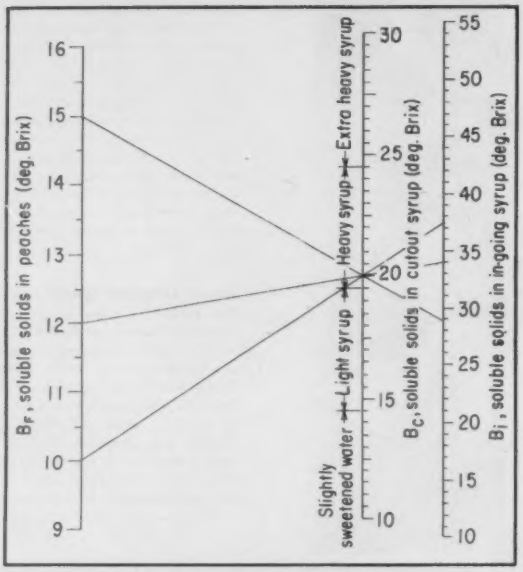

B_F, soluble solids in peaches (deg. Brix)
Slightly sweetened water
Light syrup
Heavy syrup
Extra heavy syrup
B_c, soluble solids in cutout syrup (deg. Brix)
B_i, soluble solids in in-going syrup (deg. Brix)

FIG. 1. WHEN PACKING CLINGSTONE PEACHES in No. 2½ cans, this 'graph quickly tells strength of in-going syrup required. For example: To obtain 20 Brix cut-out syrup with fruit of 10, 12, and 15 Brix soluble solids, respectively draw lines from these points on left scale through 20 on center scale. Where they terminate on right scale are strengths of in-going syrup needed. (Nomographs in this article are copyrighted by the authors.)

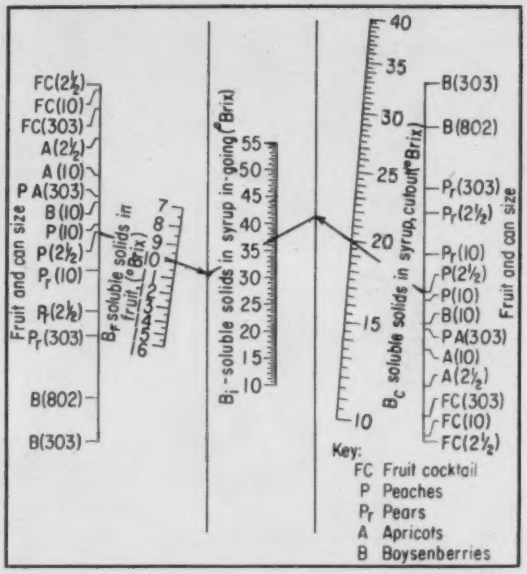


FIG. 2. FOR DIFFERENT FRUITS AND CAN SIZES, this 'graph is used. Example: Peaches in No. 2½ cans with soluble solids of 10 Brix, and desired cut-out syrup Brix of 20. Draw line from P (2½) on left scale through 10 on 2nd (B_F) scale to unmarked scale, and another line from P (2½) on right scale through 20 on B_c scale to other unmarked line. Now connect two points with line passing through center (B_i) scale. Reading here is 37.4 Brix.

These Nomographs Simplify

They eliminate laborious figuring previously needed to obtain packs of uniform sweetness with raw products of different maturities

MARKED IMPROVEMENTS in uniformity and increases in yield of canned fruits have been obtained recently by controlling quality of the fruit and carefully regulating such processing variables as peeling, stemming, pitting or coring, and filling.

One extremely important factor—uniformity of cut-out syrup strength, which greatly influences acceptability of the canned fruit—has been somewhat neglected.

Its control has heretofore necessitated fairly intricate algebraic calculations.

Now, however, the application of nomography has greatly simplified the procedure.

M. A. JOSLYN and A. S. LEVENS

Department of Food Technology and Division of Engineering Design, respectively, University of California, Berkeley.

Fig. 1 is a typical nomograph that speedily tells you the required in-going syrup strength for clingstone peaches packed in No. 2½ cans. It shows how the Brix of such syrup is varied to compensate for the soluble solids of the fruit in order to obtain a cut-out syrup of 20 deg. Brix.

Cut-Out Juice Formula

Concentration of the cut-out syrup may be calculated from the following formula:

$$B_c = \frac{F \times B_F + S \times B_i}{F + S}$$

Where B_c = soluble solids content of cut-out syrup (deg. Brix).
F = weight of fruit (oz.) added per can.
B_F = soluble solids content of fruit (deg. Brix).
S = weight of syrup (oz.) added per can.
B_i = soluble solids content of in-going syrup (deg. Brix).

This relation assumes that the refractive index of fruit tissue is an acceptable measure of total soluble solids content, and that it is also a satisfactory measure of the dissolved solids content of in-going and cut-out syrups.

True, the soluble solids of fruit tissue and cut-out syrup consist of

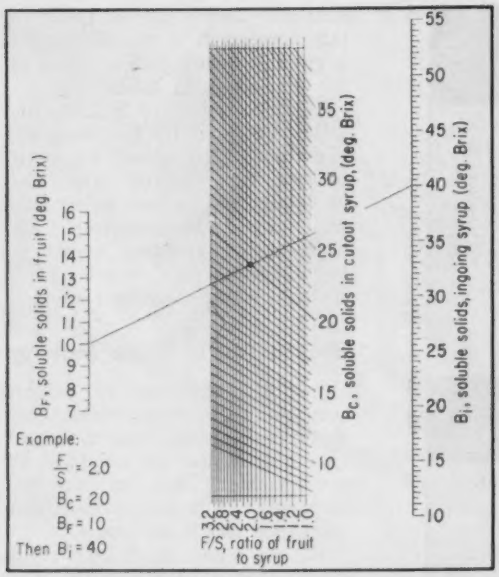

B_F, soluble solids in fruit (deg Brix)
B_c, soluble solids in cutout syrup, (deg. Brix)
B_i, soluble solids, ingoing syrup (deg. Brix)
F/S, ratio of fruit to syrup
Example:
$\frac{F}{S}$ = 2.0
B_C = 20
B_F = 10
Then B_i = 40

FIG. 3. WHEN RATIO OF FRUIT TO SYRUP is fixed this graph is employed. In example above, F/S ratio is 2 (corresponding to fill weights of fruit shown in Table II), soluble solids of fruit 10, and desired cut-out syrup Brix 20. Key point (dot) on center scale—intersection of vertical line from 2 and diagonal line from 20—is connected with 10 on left scale. Where line intersects right scale (40) is strength of in-going syrup.

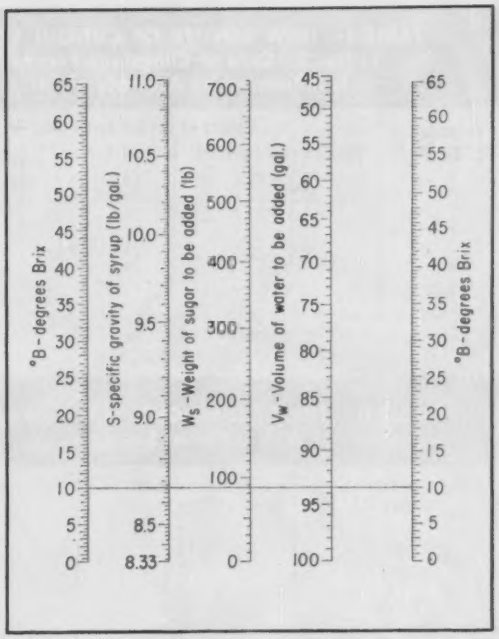

°B - degrees Brix
S-specific gravity of syrup (lb/gal.)
W_s - Weight of sugar to be added (lb)
V_w - Volume of water to be added (gal.)
°B - degrees Brix
8.5
8.33

FIG. 4. PREPARATION of in-going syrups from granulated sugar and water. Connect desired Brix (outside scales) by horizontal line. This quickly gives: (1) Sp. gr. of syrup; (2) weight of sugar needed, and (3) volume of water to make 100 gal.

Syrup Calculations

a mixture of sucrose, dextrose, fructose, organic acids, and salts. But the error introduced by assuming that these substances influence the refractive index or Brix hydrometer reading as does pure sucrose is small in comparison with unavoidable variations in fill-in weights.

It is permissible also to simplify the computation by assuming that weight of water soluble solids of fruit is approximately equal to weight of fruit.

Results of such calculations for clingstone peaches testing 12 deg. Brix, with assumption that fill-in weight of fruit in No. 2½ cans is 19 oz. and of 40 Brix syrup is 11 oz., are given in Table I. These calculations were based on a maximum variation in net contents from the arithmetic mean of ± 2 oz.

When this variation is caused by difference in weight of syrup added, maximum variations in Brix deg. (19.6-24.9) will occur. Variation is less if net weight of contents is kept constant, and markedly lower if syrup weight is uniform.

Fruit Solids Vary, Too

When filling operations are controlled, the most important cause of variation in cut-out syrup strength is variation in solids content of fruit. For the above example, cut-out syrup strength will vary from 21.0 to 24.8 Brix as soluble solids content of fruit increases from 10 to 16 Brix.

It is possible to control this variation by adjusting strength of ingoing syrup. In this case B_c is constant and the equation is solved for B_i as follows:

$$B_i = \frac{(F+S)\times B_c - F\times B_F}{S}$$

$$= \left(\frac{F}{S}+1\right)\times B_c - \frac{F}{S}\times B_F$$

(Turn page)

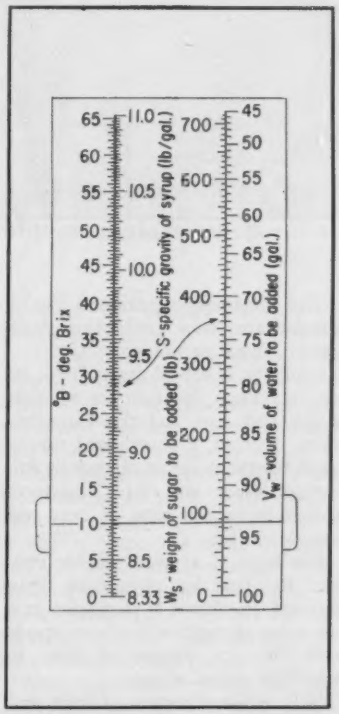


FIG. 5. THIS SLIDE RULE further speeds calculations made on nomograph in Fig. 4 for sugar-water ratio to make up syrups.

TABLE I — HOW DENSITY OF CUT-OUT SYRUP in No. 2½ Cans of Clingstone Peaches Is Influenced by Accuracy of Fill

Variation in Weight (Oz.)	Density of Cut-Out Syrup (Deg. Brix)		
	Net Contents Constant[1]	Fruit Constant[2]	Syrup Constant[3]
2	20.1 – 24.1	19.6 – 24.9	21.5 – 23.7
1.5	20.8 – 23.7	20.3 – 24.3	21.7 – 22.9
1.0	21.3 – 23.2	20.9 – 23.6	21.9 – 22.7
0.5	21.8 – 22.7	21.6 – 22.9	22.1 – 22.7
0.25	22.0 – 22.5	21.9 – 22.6	22.2 – 22.4
0.10	22.2	22.1 – 22.4	22.2
0.00	22.2	22.2	22.2

1. Net weight held at 30 oz. but fruit weight varied
2. Fruit weight held at 19 oz. but net weight varied
3. Syrup weight held at 11 oz. but fruit weight varied

TABLE II — THESE FILL WEIGHTS Will Yield F/S = 2 With Different Size Cans

Can Size (No.)	Net Contents (Oz.)	Weight of Fruit (Oz.)
300	13.5	9.0
303	15.0	10.0
1 tall	15.0	10.0
2	18.0	12.0
2½	29.0	19.4
10	106.0	71.4

TABLE III — VARIATION in F/S Ratio For Clingstone Peaches

Size of Can (No.)	F/S	Conditions	
		Fruit (Oz.)	Syrup (Oz.)
303	1.835	Standard	Standard
2½	1.726	Standard	Standard
10	1.75	Standard	Standard
2½	2.333	21	9
2½	2.148	20.5	9.5
2½	2.000	20.0	10.0
2½	1.856	19.5	10.5
2½	1.726	19.0	11.0
2½	1.608	18.5	11.5
2½	1.500	18.0	12.0
2½	1.400	17.5	12.5
2½	1.306	17.0	13.0

The previously mentioned Fig. 1 demonstrates how easily this problem is solved by nomography.

Similarly it would be possible to prepare charts for peaches in cans of different size, and also for other fruits. Instead, a generalized nomograph for the more commercially important fruit and fruit mixtures packed in various sizes of cans was computed (Fig. 2).

For fruit of a given soluble content(B_F), Brix deg. of in-going syrup required to obtain a particular cut-out syrup strength will vary uniquely with ratio of weight of fruit to weight of syrup added.

If F_o is actual weight of fruit, and I is percent by weight of water-insoluble solids in fruit tissue, true ratio of fruit to syrup will be given by the following equation:

$$\frac{F}{S} = \frac{F_o - \left(F_o \times \frac{I}{100}\right)}{S}$$

$$= \frac{F_o\,(100 - I)}{S\,(100)}$$

The F/S ratio will vary with size of can and fill-in weights. For cans from 8 oz. to No. 10, this ratio will vary from 1.14 to 3.3. When it is fixed, however, it is possible to calculate variation in Brix of in-going syrup for a particular cut-out syrup Brix with variation in fruit solids.

Nomographic solution of this general case (involving four variables B_I, B_o, B_F and F/S) usually requires use of double alignment charts, and two reading lines. However, a unique solution is given in Fig. 3, in which, by the use of a special grid chart, only one reading line is used. In this nomograph a typical example is given in which F/S is taken as 2.0 (fill weights in Table II).

Typical ranges in F/S values are shown in Table III for clingstone peaches. Similar values for other fruit can be calculated easily. The nomograph can be used to calculate true fruit soluble solids-syrup solids contents by correcting weight of fruit added for their insoluble solids content. It is a generalized solution.

Graphs Aid In Syrup Making

Just as calculation of weight-composition relations existing between in-going syrup and fruit and cut-out syrup may be simplified by nomographic charts, so can the preparation of in-going syrups from granulated and liquid sugars.

Fig. 4 is a nomograph from which weight of granulated sugar (lb.) and volume of water (gal. at 20 deg. C.) required to prepare 100 gal. of syrup of the desired Brix may be obtained easily. This calculation may be simplified by preparing a slide-rule indicator as shown in Fig. 5. Similar nomographs for obtaining syrups of the desired Brix by diluting more concentrated syrups with water or adding sugar to more dilute syrups can be computed.

Bibliography

Joslyn, M. A., "Blending Formulae and Syrup Algebra." *The Chemistry and Technology of Fruit and Vegetable Juice Production.* Avi Pub. Co., Westport, Conn., 1954, p. 880-902.

Joslyn, M. A., Leonard, S., Hinreiner, E., and Filice, B. "Effect of Syrup Composition on Flavor and Texture of Canned Clingstone Peaches." *Food Technology* 11, 170-176, 1957.

Levens, A. S. *Nomography.* John Wiley & Sons, New York, 1948.

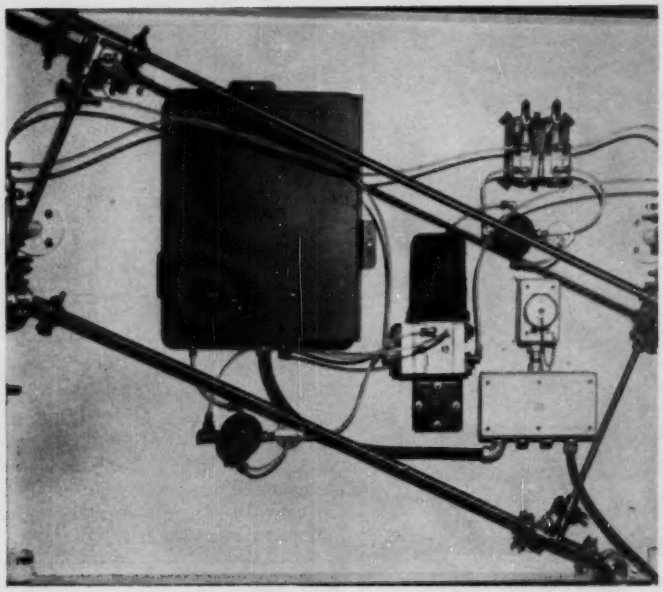
Lewis, F. A. "Corn Sweeteners—In Food Products Manufacture." *Western Canner & Packer* 48 (11), 26-28, 33-36, Oct. 1956.

Miller, G. E., Mattice, K. E., Lloyd, P. R., and Junk, W. R. "Sugar—In Food Products Manufacture." *Western Canner & Packer,* 23-26, June 1956.

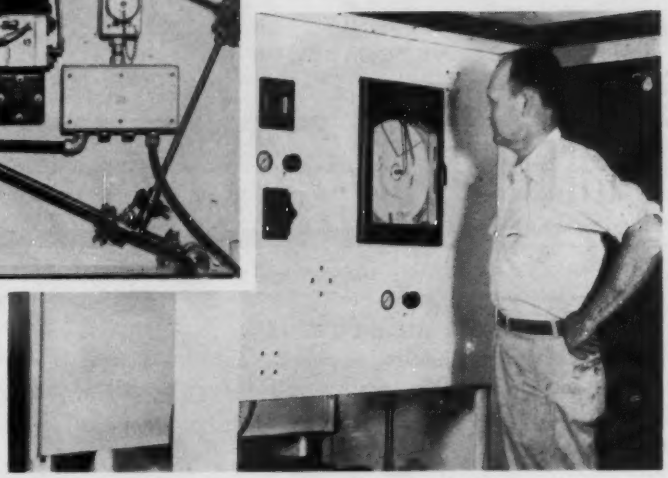
Refined Syrups & Sugars, Inc. *"This Is Liquid Sugar,"* Yonkers, N. Y., 1955.

Sale, J. W. "Interpretation of Chemical Analysis of Preserves and Jams." *J. Assn. Official Agr. Chem.* 21, 502-15, 1938.

The authors express their appreciation to Bruno Filice, Filice & Perrelli, for data on commercial fill-in weights, and for testing initial nomograph, and to J. Bentsen for assisting in preparing the nomographs. Part of expense involved in their preparation was defrayed by a grant-in-aid from Corn Industries Research Fund, and U. of Calif. Research Fund (Grant 615, Project, 5-53).



"WHEATSTONING OF SAMPLE" at back of panel (above) gives continuous record of applesauce consistency. Resulting differential-pressure readings go to . . .



RE-SET CONTROLLER (right), which detects any variation from a pre-set standard and makes adjustments. Author checks run.

Controls Consistency In-Stream

Measuring . . . recording . . . controlling directly on the production line automatically guards product quality—and thus profit—in applesauce operation

IN-STREAM MONITORING of product consistency, long a formidable problem, has now been achieved by advanced instrumentation.

At Bowman Apple Products Co., we've put in a precision unit that continuously controls the consistency of our apple sauce.

▶By ingenius application of the Wheatstone-bridge principle, it automatically measures the variable, records the data and, most important, makes required process adjustments immediately.

▶Furthermore, this in-stream control can be applied to many other items, such as baby foods, tomato products, and cream-style corn.

P. PAYNE

Plant Superintendent, Bowman Apple Products Co., Mt. Jackson, Va.

With applesauce, such control of consistency is a prime factor in maintaining both uniform quality and profit margin. Consistency is one of the five prime points upon which Government inspectors and buyers grade the final product (the other four being color, flavor, finish, and number of defects). A "Fancy" (U.S. Grade A) sauce must rate 17 of a possible 20 points for each of the five properties.

Since this high quality sauce commands 5 to 10c. more per dozen cans than the "Standard" (Grade C), it is profitable to produce.

Of the five factors, consistency generally is the most difficult to monitor. Finish and number of defects can be mechanically controlled by proper processing techniques. Good color and flavor can be achieved by careful blending of choice apples.

However—and this is the problem—pulp from a blend selected for good color and flavor generally requires controlled addition of water to maintain optimum consistency.

Initially, we tried to check the sauce during filling by watching the "slump" caused by filler nozzles. If it was not correct, operator would call for more or less addition of water. Generally, such additions are made during cooking to facilitate absorption by apple fibers and to curb de-watering of final product.

Next, we turned to sampling devices (Adams and Bostwick instruments) for testing the sauce periodically. Again, if product quality varied, we changed the water addition.

Unfortunately, there are disadvan-

NOW!

THE MOST HIGHLY PERFECTED OF ALL CONVEYOR BELTING...

GLOBE CHEMIGUM* IMPREGNATED PRESS-CURED KANRY-TEX

* High Acrylonitrile Rubber Latex, — one of the finest in the new field of latex for belting — especially developed for resistance to oil, odor, stain and wear.

THE UNIVERSAL BELT FOR ALL INDUSTRIES

Globe Chemigum Impregnated Kanry-Tex Belting is impervious to fats, oils, greases, alkalies, acids, solvents, juices, moisture and other liquids.

PRESS-CURED

Globe Kanry-Tex is non-porous, easy to clean, odorless, tasteless, non-toxic and non-contaminating.

GLOBE PRESS-CURED KANRY-TEX

is highly resistant to heat, abrasion, wear or color-fading. It maintains stability at zero to 250° F. and has ideal flexibility for small pulley diameters. Special treatment No. 301 is available for sub-zero temperatures.

WHITE, BLACK OR BROWN

in widths up to 60 inches, in 2 to 6 plies. With cleats for incline conveying if desired.

TWENTY YEARS

of research, experience, development and testing by Globe is your assurance of perfection — whatever your conveying problem.

*Chemigum—T.M. The Goodyear Tire & Rubber Co.

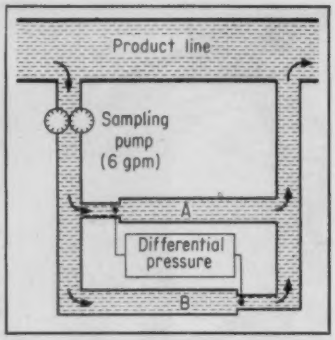
WRITE NOW for characteristics and price list.

MANUFACTURERS OF:

WHITE SOLID WOVEN COTTON BELTING • PRESS-CURED KANRY-TEX BELTING • WATERPROOF AND WAX TREATED BELTING • HYCAR BELTING • NEOPRENE BELTING • PLASCELL BELTING • CELLULOSE BELTING • STITCHED CANVAS BELTING • ROUND BRAIDED ENDLESS BELTS • HEVALOID ENDLESS BELTS • WOVEN ENDLESS BELTS • CLEANER AND SIFTER BRUSHES • WEBBINGS • HOISTING SLINGS • BELT DRESSING

GLOBE WOVEN BELTING CO., INC.
1400 CLINTON STREET • BUFFALO 6, NEW YORK

KNOWN FOR QUALITY THE WORLD OVER



HYDRAULIC ANALOG of electrical Wheatstone bridge employs two parallel flow paths (A) and (B). Each, in turn, has two sections of equal viscous resistance, but of different cross sections and lengths. Differential pressure, measured as indicated, is proportional to product consistency.

tages to these two control techniques.

As for the "slump" method, once a consistency variation is noted, filler operator must relay information to the cooking station—where the water correction is actually made. Amount of change can only be estimated, and other adjustments may be needed.

Meanwhile a considerable amount of sauce may be downgraded just because its consistency is poor.

Moreover, an experienced filler operator is a most valuable man who has many other important duties. He cannot always be on hand to monitor consistency. And once the sauce is in the can, no correction is possible.

The second method—periodic sampling—generally eliminates large runs of lower-quality sauce. Yet, measurements tell how the sauce "was"—not how it "is". Water addition still must be estimated and adjusted continuously if tight control of consistency is to be maintained.

Clearly, what we needed was an automatic system combining continuous testing, recording, and automatic control of water addition.

These operations are now being efficiently performed by a control unit that's called the "Plastometer" (Fischer & Porter Co., Hatboro, Pa.). Installed just ahead of the filler, it holds sauce consistency to a far closer tolerance than could ever be obtained by former manual techniques.

Here is how the instrument works:

As shown in the accompanying diagram, instrument's measuring portion is a hydraulically balanced flow

For more data, circle 313 on Reader Service Card

For more data, circle 314 on Reader Service Card

Photo courtesy of The UPJOHN Company

Now! Snail's pace to top speed...no jars, no jolts!

Entirely new! The only electric fork truck that provides smooth, "non-jerk" power-delivery under *all* working conditions.

On the all-new *Clarklift* Electric an infinitely variable speed control provides the *exact* torque necessary for different working conditions and assignments. On ramps, in congested areas, and particularly when inching or stacking . . . power is delivered with perfect regulation. Your driver has *complete* control of the travel speed of his truck at all times, resulting in greater efficiency and safety than ever before possible.

A new upright, one lever for both lift and tilt, self-adjusting brakes, unmatched accessibility are just some of the new features. There are many, many more. Send today for a brochure giving full details. Simply write: New Electrics, Clark Equipment Co., Battle Creek, Mich.

CLARK® EQUIPMENT

CLARKLIFT is a trademark of Clark Equipment Company

d in U.S.A.

"We've reduced our scrubbing time from 70 to 7 man-hours ... and our floors have never before been so clean!"

— says Foreman of
BURNY BROS. BAKERY, CHICAGO

Garage and stockroom floors in Burny Bros. large, modern bakery get daily scrubbing with a *Job-Fitted Combination Scrubber-Vac* and *Setol Cleanser*

THEY'RE an unbeatable team to speed the cleaning of oily, greasy floors. *Here's why:* A *Scrubber-Vac* completely mechanizes scrubbing. It applies the cleanser, scrubs, flushes if required, and picks up (damp-dries the floor) — *all in one operation! Job-fitted* to specific needs, a *Scrubber-Vac* provides the maximum brush coverage consistent with the area and arrangement of the floors. Its teammate, *Setol Cleanser,* is specially designed for the greater speed of *combination-machine-scrubbing* ... emulsifies grimy oil and grease *instantaneously* for fast, thorough removal by the machine's powerful vac. Moreover, *Setol* retains its strength longer than average alkaline cleansers. This, too, speeds the cleaning process ... saves on materials ... and cuts operating time of the machine, which in turn reduces labor costs. The *Scrubber-Vac* shown above is *Finnell's 213P,* for heavy duty scrubbing of large-area floors. It's *self-propelled,* and has a 26-inch brush spread. Cleans up to 8,750 sq. ft. per hour (and more in some cases), depending upon condition of the floors, congestion, et cetera. (The machine can be leased or purchased.) *Finnell* makes a full range of sizes, and *self-powered* as well as *electric* models ... also a full line of fast-acting cleansers. In fact, *Finnell makes everything for floor care!* Find out what *you* would save with *combination-machine-scrubbing.* For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 5709 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.
Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

bridge, analogous to an electrical Wheatstone unit. It consists of two parallel flow paths, each further divided into two series flow paths of equal viscous resistance, but of different cross sections and lengths.

All four resistances are designed to be equal when an "ideal" (Newtonian fluid) passes through them. However, applesauce is not an ideal fluid, but a slurry. Hence, it follows a different physical law relative to pressure drop through a given length and diameter of pipe.

Since the bridge is balanced for an ideal fluid, it cannot be balanced when a slurry is circulated. And the pressure differential created by passing applesauce through the bridge is proportional to product consistency.

In control operations, unit draws sample from a holding tank at about 6 gpm., circulates it through the bridge, and returns it to tank.

Differential pressure (consistency) is measured by a standard proportional-reset controller. This unit detects any variation between a pre-set consistency control figure and the actual measurement, then positions a water valve accordingly. Recording is done on a 12-in. circular chart.

The bridge, of sanitary stainless steel, is continuously water purged (100 cc. per min.). Flow paths are of at least ¾-in. i.d. to prevent plugging, and all tubing is connected with CIP (cleaned-in-place) connections to speed disassembly for cleansing.

Finally, entire unit is of waterproof construction—a must in any cannery. —*End*

"You'll find that we've had some very interesting results with irradiation here."

THIS SLEEK stainless tank-trailer, used in common carrier fleets, has reduced unit distribution costs for three Midwest vinegar producers. With reinforcement by 10 outside rings, tank is 'smooth-bore'—free of inner braces and thus simpler to clean.

They Save by Using Common Carrier

Getting an outside hauling service for the bulk distribution of vinegar—with wood 'out' and stainless steel 'in'—pays off for Midwest producer

A SWITCH to trailer tankers operated by a common carrier has considerably reduced the costs of delivering vinegar, report three Midwest producers.

Used mainly for fast distribution in the 150-300 mi. range, the stainless steel tank-trailer method is stated to have cut handling costs, eliminated the old wooden-barrel leakage, and lessened the need for customer storage space. And the producers no longer need to maintain their own transport facilities.

They say the savings have more than offset the cost of using outside transportation.

Producers using the common carrier service are Alton Vinegar Co., Alton and Olney, Ill.; National Vinegar Co., St. Louis; and Consolidated Products, Danville, Ill.

Prior to adopting this plan, they had shipped bulk vinegar in 55-gal. wooden barrels, wooden truck tanks of small capacity, and wooden rail tank cars. The latter are still used for the longer hauls.

Focus on Carrier

All three companies employ the D. H. Kessman trucking firm of Hamel, Ill.

Kessman began handling vinegar last summer, using three Heil clean-bore, frameless trailer tanks, each having a capacity of better than 4,000 gal. The tractors are Whites. Since the tanks are of stainless steel, they are not corroded by the vinegar as are ordinary carriers, nor do they contaminate the product.

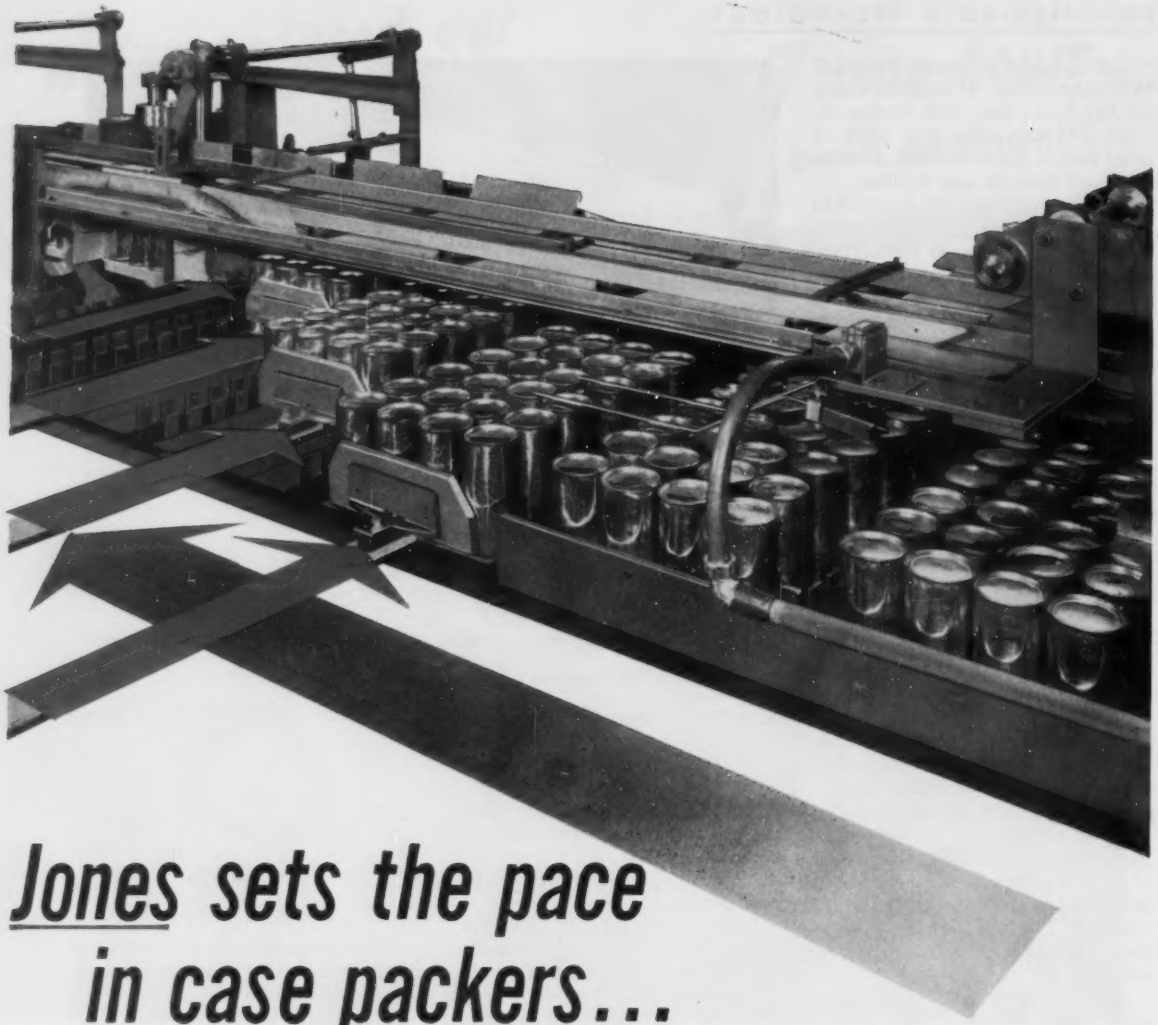
Most frequent trips have been to Kraft Foods Co., Chicago, and to Quaker-Maid Co., Bloomdale, Ohio. No backloads are hauled from Chicago or Bloomdale, but inbound loads of cider are carried from points in Illinois to Alton.

At destination, vinegar deliveries to customers are made by gravity or by the customer's pump. The tank-trailers are not equipped with pumps, since as yet they've not been needed. Customers having enough storage capacity to utilize such bulk products usually have several pumps available.

The tank-trailers are washed after each load is delivered to avoid any contamination of the next load. Constructed without internal baffles, braces, or stiffeners, the tanks are easily cleaned.

Their appearance differs from the conventional trailer tank in that they have ten external rings to reinforce the tank shell so it will not kink or buckle.

Forerunner of this tank is the frameless tank trailer developed by the Heil Co. in 1936 to reduce trailer weight. —*End*



Jones sets the pace in case packers...

New Jones CMP (constant motion case packer) loads 50 cases of 24 cans or 80 cases of 12 cans per minute into single tier, end-loaded cases. Quickly adjusted to take twelve or twenty-four 12-oz. or 16-oz. lithographed or labeled cans.

The increase in bulk can handling in the food and brewing industries has created the need for a high speed, fully automatic case packer with the stamina to stand up under continuous operation, heavy loads and hard use. The new Jones CMP meets all these requirements comfortably. In addition, it saves thousands of dollars annually by using the economical, easy-opening, end-loaded case. In the twenty-four 12-oz. can pack, for example, board usage is 22.7% less than the more expensive top-loaded case.

Superior performance at high speeds is assured by these Jones design and construction features:

(1) heavy cast iron frame and other construction details.

(2) positive and orderly grouping of cans into conveyor buckets assures rigid control during loading operation.

(3) positive method of case feeding and opening.

(4) intaglio method of gluing and controlled drying.

For complete information, write us today outlining your requirements.

R. A. JONES & COMPANY, INC.
Cartoning Machines - Case Packers

P. O. BOX 485, CINCINNATI 1, OHIO

BRANCH OFFICES
New York • Chicago • St. Louis • Los Angeles
San Francisco • Seattle • Mexico D.F.

Flavor Problems Weighed

Extract analysis, tentative standards for frozen desserts, and additive legislation share spotlight at Chicago meeting of Flavoring Extract Mfrs. Assn.

"Pure" Vanilla Extract

New chromatography methods, developed at Boyce-Thompson Institute and currently being corroborated by chemists in industry and at FDA, point the way to practical standards of vanilla-extract purity.

While such protection of reputable processors from unfair competition of substandard extracts is entirely proper and desirable, it does invite two economic problems: (1) With no present prospects for a greater supply of vanilla beans, increasing demand would raise the price of this ingredient, which (2) could incline users to imitation products.—*E. N. Heinz, Jr., Food Materials Corp., Chicago.*

The chromatographic screening of vanilla extracts, although only qualitative, is preferred to conventional analytical techniques because it is a relatively simple procedure.

A.O.A.C. methods for determining vanillin, lead number, vanilla resins, and organic acids take about two days. And even though newer techniques supply additional data by which adulteration can definitely be detected, they also are time consuming and generally require instruments that are beyond the economic means of the average flavor house.

Collaborative work with chromatographic screening started with pure vanilla extracts prepared in the FEMA percolator. There was no difficulty in reproducing results. Next task will be testing of extracts prepared in various industrial percolators or extractors, and subjected to higher temperatures during digestion. Effects of alkalis, ranging from mild bicarbonates to strong caustics, must be determined to develop chromatograms.—*D. Jorysch, H. Kohnstamm & Co., New York City.*

Frozen-Dessert Standards

Identity standards for ice cream, frozen custard, sherbet, and water ices have been proposed (Federal Register, Mar. 26, 1958). The order would forbid use of artificial flavorings to create a misleading impression relative to presence of natural ingredient, or amount of natural ingredient present. It proposes that no artificial vanilla be used in ice cream whose characterizing ingredient is vanilla beans or their extract.

Relative to possible toxicity of flavoring compounds, rat-feeding tests indicate that vanillin and ethyl vanillin do not present toxicity problems. In general, it appears that classes of flavoring materials having aldehyde, alcohol, ester, ketone, and phenol groups are readily metabolized.

However, those containing an allyl group are still suspect. Included in this group are oils of garlic, mustard, and saffrol. Further studies may indicate that they have toxic properties when ingested in large amounts.—*R. A. Osborn, USDA.*

Additive Legislation Seen

Through House Subcommittee hearings, flavoring processors may review those agents which would be subject to first attack upon passage of a food-additive amendment.

In addition to allyl compounds, they include benzalacetone, coumarin, dihydrocoumarin, oxoamyl acetates (sic), and phenylacetic acid. Note that this list contains some chemicals not now being used in foods, as far as FDA is aware, but proposed for use.

In amplifying its views on what constitutes functional value, FDA would disqualify an additive if its use: Deceives the consumer, disguises faulty processing and handling techniques, or reduces food value significantly. To the extent that added flavorings might conceal spoilage or inferiority in foods, their use would not be permitted under this interpretation.—*B. L. Oser, Food & Drug Research Laboratories, Inc., New York City.*

GET MORE OUT OF YOUR SPRAYING EQUIPMENT WITH LESS POWER

For spraying, washing, rinsing and cooling, Yarway Spray Nozzles will improve the efficiency of your spray equipment.

There are no internal vanes or other restrictions to clog or hinder the flow.

Cast bronze Involute-type
(Bar stock also available)

Bar stock Fan-spray-type

Yarway Spray Nozzles are available in two types—the Yarway Involute producing fine hollow cone spray with minimum energy loss, and the Yarway Fan-spray for flat fan-shaped spray with time-saving slicing action for cleaning.

Ask for a free copy—
Bulletin N-618.

YARNALL-WARING COMPANY
127 Mermaid Avenue
Philadelphia 18, Pa.

YARWAY spray nozzles

Circle 317 on Reader Service Card

SPROUT-WALDRON Pointers

for Mixing and Blending • Size Reduction
Size Classification • Bulk Materials Handling • Pelleting and Densifying

Published in the interest of better processing by Sprout, Waldron & Co., Inc., Muncy, Penna.

BLENDING HCL AND STARCH POWDER

An assembly of horizontal batch mixers preceded by brush sifters had been installed for the mixing of diluted HCL acid and starch powder prior to converting the starch to dextrine. Results indicated quickly that thorough blending was needed.

Non-uniform distribution of acids and starch caused acid-rich nodules on the stock layer to be conveyed to the oven. Other portions were insufficiently treated. Two troubles resulted:

1. Those portions of the stock over-treated either carmelized or charred causing carbon specs.
2. Portions under-treated were not completely dextrinized.

When an adaptioneered S-W Intimate Blending System was installed, acids and starch were so completely blended that both types of troubles were entirely eliminated. Sprout-Waldron blending not only eliminates all lumps or nodules, but accomplishes such complete dispersion that individual particles lose their identity.

SW

STOP DUST WITH S-W MULTI-TUBE FILTER DUST COLLECTORS

To provide maximum plant cleanliness, prevent waste and eliminate complaints about dust, the Sprout-Waldron multi-tube dust collector is the most efficient answer.

The floor mounted Sprout-Waldron dust collector draws dust in through a connection in the side of the case. The hopper mounted unit utilizes the suction created to draw the dust-laden air from the complete hopper surroundings. A separate air inlet connection in the side of the case may be furnished so the dust from other equipment as well as from the hopper may be collected. Dust cannot leak out of the collector since the entire case is under vacuum during operation.

Operates under a vacuum, so there is no outward leakage.
Compact, streamlined appearance.
Available for floor or hopper mounting.
Shaker handle facilitates cleaning of filter tubes.
Filter tubes easily removed for inspection.
Available in either 200 cfm or 400 cfm capacity.

The clean air from either unit may be discharged directly into the room for conservation of heat or be blown to the outside through ducts when required. Each of the many special cloth filtered tubes have their own support grid and the complete tube assembly can be kept clear of dust for greater filtering efficiency at periodic shaking of the entire support plate.

Close up of Sprout-Waldron Richmond Gyro-Pedestal Sifter showing columnar construction which permits 360° rotation.

GYRO-SIFTERS HELP KEEP ABRASIVE WHEEL QUALITY HIGH

Maintaining uniform grain size in the mass production of resin-bonded abrasive wheels at Carborundum presented quite a problem. Operating sequence called for mixing the various size grains with the resin binder at a central location and then conveying by means of buckets to 86 molding stations. The buckets discharged the grain-resin mixture into surge bins situated over the wheel molding machines.

Troubles arose because the pressure sensitive nature of the resin-bonded granules led to the formation of oversized agglomerates, which had to be screened out or broken up to maintain uniform grain size. A variety of vibrating devices had been tried without success. Carborundum licked the problem by mounting 43 Gyro-Sifters at the discharge ends of the bins. Since the design of these sifters permits them to be rotated 360° this arrangement made it possible to use one sifter for two or more reserve hoppers.

The full story appears in S-W *Pointers*, Vol. 1, No. 3. Copy on request. CP/105

TYGON B44-3

food and beverage hose

The Golden Age Beverage Co., Inc., of Akron, Ohio, franchised bottlers and distributors of Pepsi-Cola, use Tygon Formulation B44-3 Transparent Flexible Plastic Tubing extensively in their Pepsi-Cola operation. Liquid sugar and syrups are piped to process vats, prepared mixes are pumped to storage tanks . . . all through 2" i.d. x 2½" o.d. Tygon B44-3 Food and Beverage hose.

Tygon B44-3 Tubing was chosen for this operation because of its many outstanding advantages over other piping mediums. For example, because it is non-contaminating and totally inert to food acids and alkalis, there is no possibility of flavor taint or odor resulting from its use. Its glass-like clarity enables operators to visually check contents at any point.

Tygon B44-3's flexibility makes it adaptable to any layout. It can be used in long continuous runs without extra joints or couplings, and if desired, hoses may be interchanged or simply moved from one application to another. The highly polished bore permits fast, thorough cleansing—Tygon lines may be uncoupled, washed or steam flushed — and be back in service in minutes. Fifty-five bore sizes from 1/16" to 3" i.d. insure a size for every need.

Consider for a minute how taste-free, odorless, transparent flexible "piping" can benefit your operation . . .

Send for Bulletin T-97. It's yours for the asking and gives the complete story on Tygon B44-3.

365E

Plastics and Synthetics Division

U. S. STONEWARE
AKRON 9, OHIO

TAYLOR AUTOMATIC CONTROLS OPERATE THE 20 RETORTS AT PERFECTION CANNING'S NEWARK, N. Y. PLANT

N. Y. CANNER CUTS COSTS, REDUCES ERRORS WITH NEW TAYLOR CONTROLS

Perfection Canning Co. operates more efficiently, produces more uniform product with Taylor Automatic Retort Controls

Newark, N. Y.: H. G. Chapman, President of Perfection Canning, writes that modernization of 20 retorts with Taylor automatic controls has solved many production problems for his company.

"We are sure of a better . . . more uniform product. We can operate our cook room with less help. And the possibility of mistakes . . . is eliminated.

"We are very pleased with our Taylor Controlled cook room. We are getting uniform quality control with a saving of steam and water."

* * *

Find out how Taylor Controls can help you too. Call your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Ontario.

FOR PERFECTION, Taylor Controls do *everything* in the canning process . . . *automatically*. They (1) modulate steam valve to maintain precise cooking temperature; (2) turn off steam at end of cook cycle, admit cooling water to retort, maintain pressure throughout cooling period to prevent can damage; (3) turn off and reset system at end of cycle. Cycle can also be terminated manually any time.

Taylor Instruments **MEAN ACCURACY FIRST**

MOYNO® PUMPS

CUT HANDLING COSTS

at P. J. Ritter Company

...pumping tomato seeds and 5-15% water

The Moyno "progressive cavity" pumping principle has enabled thousands of plants to pipe difficult materials that were transported by hand and other expensive means. For example, The P. J. Ritter Co., famous food packers since 1854, have increased efficiency by installing seventeen Moyno Pumps. The one shown at the left is pumping tomato seeds in 5-15% solution at 10 gallons per minute. The pump runs at 600 RPM.

Moyno is the only pump that will handle many difficult materials such as abrasives, pastes, slurries, chemicals, foods, suspended solids, etc., without foaming, aerating, crushing or excessive pump wear.

Examine your processing methods. No doubt there are several places where Moyno Pumps can drastically cut costs. Ask us, we'll give you a prompt answer. Send us an outline of your problem today! Write for Bulletin 30-FE.

ROBBINS & MYERS, INC.

SPRINGFIELD, OHIO | BRANTFORD, ONTARIO

Motors | Fans | Hoists | Moyno® Pumps | Propellair® (Industrial) Fans

For more data, circle 321 on Reader Service Card

torula yeast

now used in New Heinz Baby Foods

Lake States Torula Yeast boosts nutritional value in many good food products. Heinz Baby Foods is a typical example. You can probably improve the nutritional value of *your* product with the addition of Torula Yeast. Why not investigate and consider its many advantages? Write today for samples and full information.

Lake States Torula Yeast was selected by H. J. Heinz Company, famous food processors, as an important ingredient in their new High Meat line of baby foods. The excellence of this fine dried yeast is due to its being primary grown in sterile media and produced under constant control. It consistently exceeds U.S.P. standards. This remarkable ingredient offers high levels of B-complex factors and protein. The taste is bland and the product has excellent stability and uniformity.

Lake States

Lake States Yeast Corporation, Rhinelander, Wisconsin • Sales Office: 500 5th Avenue, New York 36, New York, or Charles Bowman and Company, 220 E. 42nd Street, New York 17, New York • 600 S. Michigan Avenue, Chicago 5, Illinois • 170 E. California Street, Pasadena 1, California

Starch-Milk Puddings Popular in Holland

Custard puddings, containing 4–5% starch cooked in milk, bottled at 140-180 F., pasteurized or sterilized, and cooled to 50 F., are widely consumed in the Netherlands.

In a study of their preparation, it was found that a cooking temperature of about 200 F. gave best results, lower temperatures yielding products lacking in homogeneity, and having a tendency to syneresis.

Maximum stiffness is reached during sterilization at 230–260 F. for 10–25 min. or more. Thickness of the puddings rises sharply with starch content above 4.2%.

Longer cooking increased gelatinousness but such puddings lost more viscosity with mechanical treatment than those cooked for shorter times. By cooling to as low as 87 deg. with stirring, thinner, finer, and creamier products were obtained.

Up to 60 F., storage temperatures had little effect on viscosity of the puddings, but it decreases rapidly above this temperature. The sinker method, Ford cup, and Gardner mobilameter were suitable for measuring consistency of these puddings.—*J. Science Food & Agr.* 9(2), 61–77, 1958.

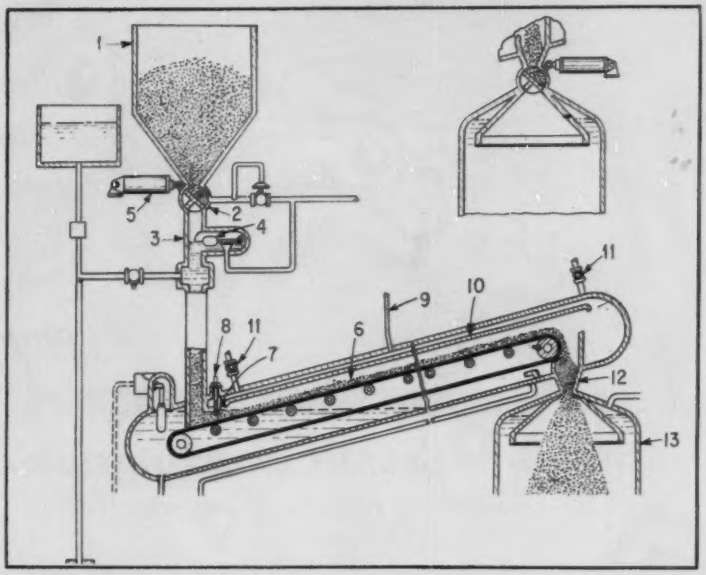
Instant Tea Strides

Readily soluble in cold water, a solid tea may be prepared by a patented process that insures recovery of all the essence originally extracted with hot water.

This is accomplished by addition of an alkaline sulphite to the water with which the tea is originally brewed. For example: ½ lb. of orange pekoe tea leaves was treated in an ordinary coffee percolator with 56 liquid oz. of boiling water for 15 min., yielding 30 oz. of hot clear essence.

To this was added 4g. anhydrous $NaHSO_3$, followed by boiling until volume was reduced to 15 oz. Final evaporation to dryness was completed under 20 in. of vacuum.

As an alternative the solution may be spray dried. Product may then be formed into tablets, with or without sugar.—U.S. Patent 2,831,772, Apr. 22, 1958.



This Improved Equipment Produces Puffed Rice Cereals Continuously

A new continuous process and improved apparatus for preparation of puffed cereals such as rice, is revealed in a recent patent.

In its operation, the free-flowing cereal is fed from hopper (1 in drawing) through star valve (2) into vertical column (3) in which water is maintained at desired level by air-controlled float valve (4). Star valve is actuated by air cylinder (5) to provide suitable feed of cereal from hopper to vertical column.

Within column (3) cereal forms a pile, top of which is maintained at desired level by the above mentioned star valve control, or by adjusting speed of belt (6), which is located in an inclined chamber at lower end of column.

Cereal flows from bottom of column onto the belt and is conveyed upward under steam pressure of 85 psi.

Speed of the belt is adjustable to provide proper length of cook.

A third feeding adjustment is weir (7), height of which is controlled by arm (8). This dam adjusts level of product that will be carried on the belt. Water level in inclined chamber is carried high enough to seal lower end of column (3). Steam introduced through line (9) impinges on baffle (10), and air is purged as needed through lines (11).

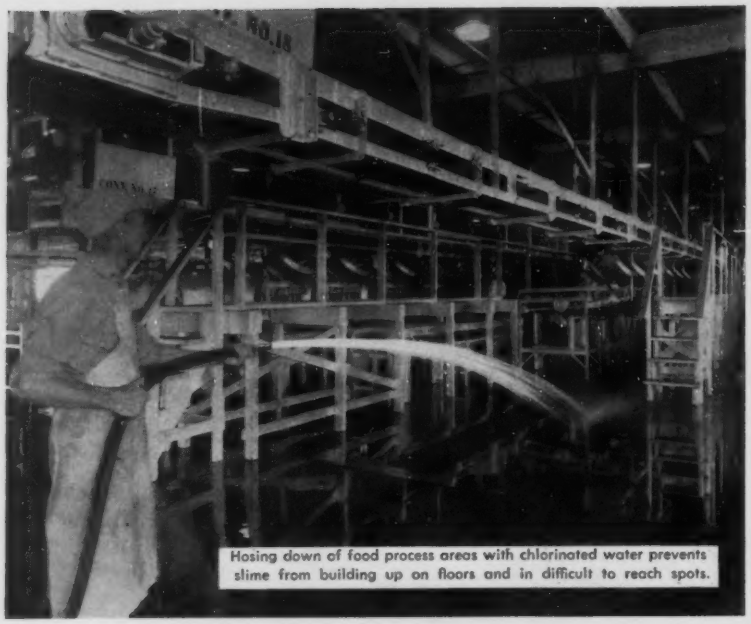
As the cooked cereal is discharged over end of belt (6), it passes through restricted orifice (12, and inset) to puffing chamber (13) which is maintained at a vacuum of 2/10 in. Hg. The sudden change of pressure causes an explosive expansion of the cereal granules as they fall to the bottom of the chamber. A suitable valved exit provides for their removal.—U.S. Patent 2,838,401, June 10, 1958.

Microwaves 'Slow' Enzymes

Inactivation of enzymes and microorganisms in fruit juices can be accomplished by application of microwave energy, according to a patented process.

Apparatus comprises a counter-flow device consisting of a pair of concentric glass bowls, a magnetron oscillator, and a shielded helical radiator or director.

Juice flows from a reservoir into



Hosing down of food process areas with chlorinated water prevents slime from building up on floors and in difficult to reach spots.

HOW W&T IN-PLANT CHLORINATION

cuts clean-up time and keeps plant cleaner

At a large eastern quick-freezing plant, slime accumulation on processing floors was a problem. It was necessary to halt production runs frequently for clean-ups.

Wallace and Tiernan Chlorinators were installed on the plant water system and all water in the plant is now chlorinated. Besides eliminating slime on processing floors and equipment, In-Plant Chlorination helps to maintain a higher level of plant sanitation with greater ease. Clean-up times have been reduced as much as 50%. Floors are no longer slippery from slime and accidents from this source have been virtually eliminated.

For information about W&T In-Plant Chlorination send for Bulletin #I-58.37

WALLACE & TIERNAN INCORPORATED

25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

W&T MERCHEN SCALE FEEDERS & METERS

for Automatic Batch Control
Continuous Blending
Materials Accounting

Control the feeding of ingredients by weight to an accuracy of 1%.
Capacities range from 3 to 3000 lbs. per min.

WRITE FOR YOUR COPY OF OUR BULLETIN:
"The Best Weigh is the Merchen Way."

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

M-31.37

the outer bowl and over the lip of the inner bowl. Here it is discharged into a storage container where it is cooled prior to canning.

Helical director is disposed above concentric glass bowls, so that microwave energy is concentrated on the thin film of juice overflowing the outer bowl.

Tests show complete inactivation of enzymes and microorganisms without deterioration of any of the properties of the juice.—U.S. Patent 2,833,657, May 6, 1958.

Metal Ions Identified By Chromatography

In qualitative analysis for foreign materials in refrigeration systems, paper chromatography has numerous advantages over conventional method.

Metal ions have been identified much more quickly than by routine chemical analysis; and a technique has been developed that is simpler, less time-consuming, and more reliable than the standard methods of qualitative analysis. Further advantage is in the extremely small sample required.

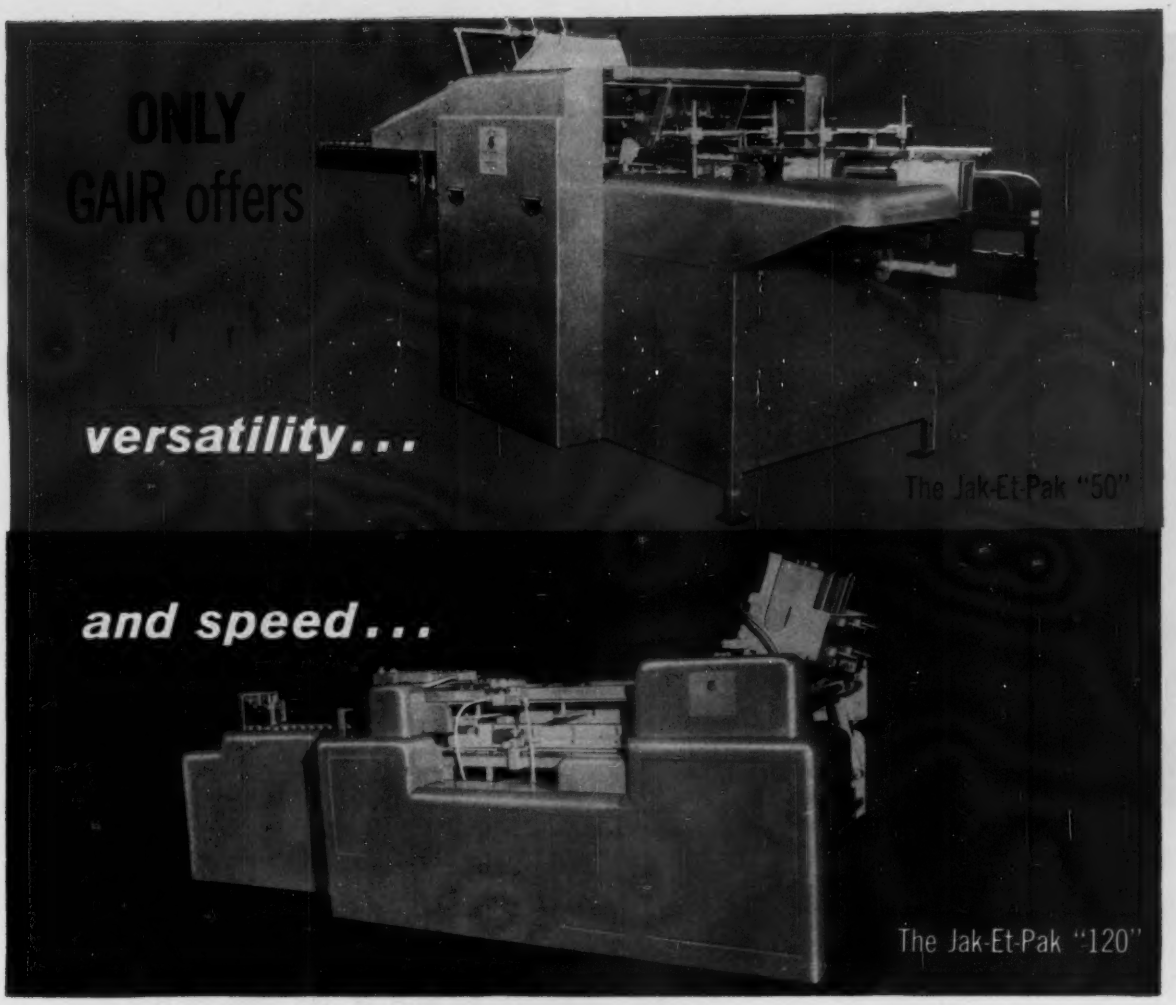
Apparatus and reagents are relatively simple. Whatman No. 1 filter paper, predeveloped to free it from impurities, is used for the chromatograms. Ultraviolet light is necessary for the final examination of the tests. Developing solvent contains, by volume, 2 parts concentrated HCl and eight parts *n-butanol*. A spray solution for the developed chromatograms consists of 1g. 8-hydroxyquinoline dissolved in 100 ml. methanol. Concentrated NH_4OH serves as a bleach.

Samples of sludge or oil residue are prepared by boiling a small quantity in a test tube for several minutes with 1 and 3 ml., respectively, concentrated HCl and HNO_3. Solution is cooled, filtered and evaporated to dryness. Residue is dissolved in a few drops of HCl, and spotted on a predeveloped paper strip by means of a micropipet.

Strip is developed, air-dried, sprayed, and hung in a stoppered flask containing NH_4OH that bleaches the yellow background.

Identification of the metals is made by either (1) Color under both normal and ultraviolet light, or (2) movement of the spot, known as the R_x factor.

Three metals most common to materials removed from refrigeration

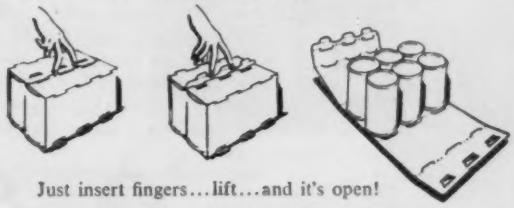


in multi-pak systems for bottles and cans!

IF YOU NEED PACKAGING VERSATILITY to handle bottles, jars, or any one of a wide variety of can shapes and sizes–the amazing Jak-Et-Pak "50" is really a *pocket-sized* dream. It handles double and single-line formations, and can change over from double line to single in less than an hour! New suction feed means no skipping or doubling–and the wide size range means that you can package practically anything, *better!* Yet the "50" is a mere 10'4" long, 4'2" wide, *including the in-feed conveyor!*

IF YOU NEED PACKAGING SPEED to handle cans at a fast and furious pace of up to 120 carriers or 720 units per minute, then Jak-Et-Pak "120" offers exceptional production efficiency. And even the amazing "120" requires only ⅓ the space of conventional equipment!

AND FOR YOUR CUSTOMERS' CONVENIENCE an ingenious locking mechanism, the exclusive Gair Duo-Lok is built into Jak-Et-Pak systems. Duo-Lok contains *no moving parts*–provides excellent package closure, and extra fast and easy opening to give your multi-paks more merchandising appeal...like this:

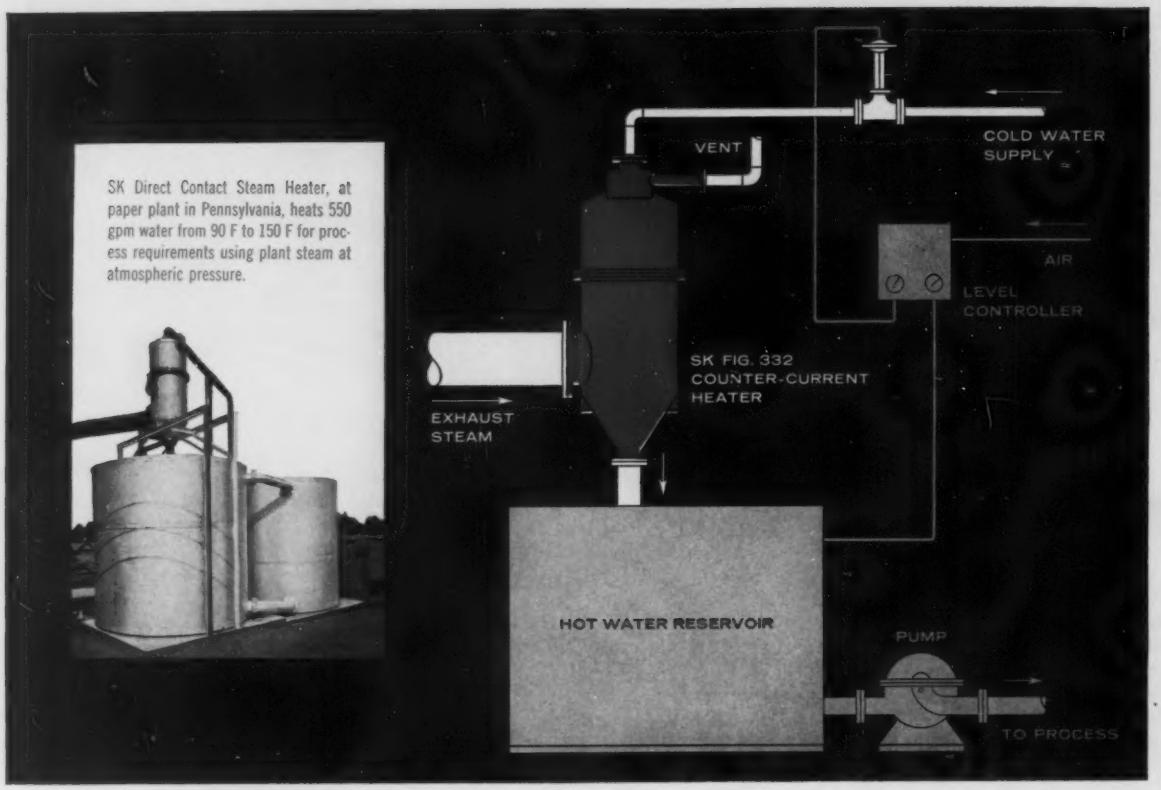


Just insert fingers...lift...and it's open!

GAIR

creative engineering in packaging

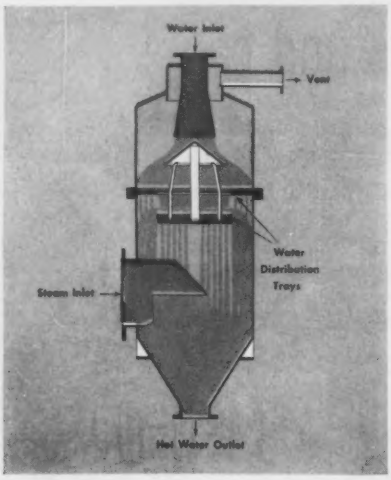
BOXBOARD & FOLDING CARTON DIVISION OF CONTINENTAL CAN COMPANY • 530 FIFTH AVENUE, NEW YORK 36, N.Y.


SK Direct Contact Steam Heater, at paper plant in Pennsylvania, heats 550 gpm water from 90 F to 150 F for process requirements using plant steam at atmospheric pressure.
VENT
COLD WATER SUPPLY
AIR
LEVEL CONTROLLER
SK FIG. 332 COUNTER-CURRENT HEATER
EXHAUST STEAM
HOT WATER RESERVOIR
PUMP
TO PROCESS

FOR HOT WATER IN LARGE QUANTITIES

use SK Direct Contact Steam Heaters

Sectional drawing of SK Fig. 332
Direct Contact, High Capacity, Steam Heater



SK Direct Contact Steam Heaters are designed to provide large quantities of hot water, or other liquid, for plant or process use. They do this by using plant exhaust steam (at low pressure or at vacuum to 15 in. Hg) to heat the water which is then delivered to a tank or reservoir.

To users, these high capacity heaters offer specific, worthwhile advantages. They are simple in design, have no moving parts. Heating, by condensation of steam in the liquid, is very efficient, continuous, and fast. A temperature rise of 130 F is possible with most of these units. Semi-solids in the liquid are handled without difficulty. Costs are reasonable and the heaters require little maintenance. Capacity can be just about any reasonable amount desired, since capacity is determined by heater size and SK has not established any maximum. Although cast iron and fabricated steel are standard materials of construction, other special materials can be used when required.

The counter-current unit pictured above and at left is one of four types made by SK. This particular heater and all of the other types are described in detail in Bulletin 3A-HC which includes application information and data on sizes, dimensions, and capacities. Copies of Bulletin 3A-HC are available immediately on request. Send for a copy.

JET APPARATUS: Ask for Condensed Bulletin J-1.
ROTAMETERS & FLOW INDICATORS: Ask for Condensed Bulletin M-1.
VALVES: Ask for Condensed Bulletin V-1.
HEAT TRANSFER APPARATUS: Ask for Condensed Bulletin HT-1.
GEAR PUMPS: Ask for Bulletin 17-A.

Schutte and Koerting
COMPANY
MANUFACTURING ENGINEERS SINCE 1876
2223 State Road, Cornwells Heights, Bucks County, Pa.

systems—Cu, Al, and Fe—are completely resolved by paper chromatography, and often a cation is shown that might easily have been ignored in wet qualitative analysis.—*Refrigerating Eng.*, 41-43, May 1958.

Variations in Flour Minimized By Air Classification

A new family of flours, tailored to a bakers particular need, and with uniformity on which he can rely, is seen resulting from use of an air-classification process.

With this process, any given flour can be fractionated into its component parts and subsequently reassembled into many totally new flours.

For example, in the conventional milling of a good all-winter-Kansas bread flour, approximately 25% contains a low-protein starch material. This fraction makes fine cakes, but is not suited for breadmaking. Removal of this 25% remarkably upgrades the remaining 75% for breadmaking.

Similarly, by removing the high-protein very fine material, and also the oversized chunk endosperm material from soft wheat cake flour, the resultant flour portion is much upgraded for cake-making.

With use of this new process, adverse influences of climate, soil, and constantly changing varieties will be substantially minimized. — *Cereal Science Today*, 123–26, May, 1958.

Beverage Spoilage Curbed By Acidity and Carbonation

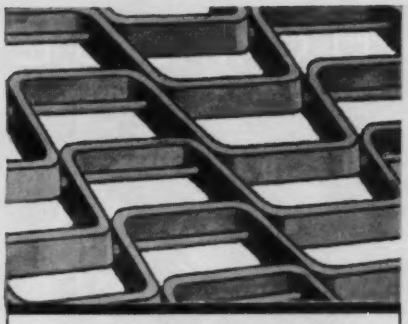
With good plant sanitation, soft drink packers should not experience growth of *E. coli* or yeasts in beverages that have pH values of 4 or less, and are carbonated to 2.0 or more volumes.

These conclusions resulted from tests for lethalities of *E. coli* and an unidentified yeast in 32 simulated soft drinks. Variables in the mixture were: pH—2.0–4.5; Brix—0–15 deg.; carbonation—0–4.5 volumes.

The pH exerted the major effect on *E. coli*. Lethality at pH 2.0 was about 50 times that at 3.0; 250 times that at 4.0, and 900 times that at 4.5. At pH greater than 2.0 lethality was independent of sucrose concentration. At pH 2, however, increased sucrose appeared to exert a slight protective effect.

Increased lethality of *E. coli* was noticed with higher carbonation at

Wash • Drain • Cook • Freeze • Dehydrate Food Faster on:



LA PORTE
FLEXIBLE STEEL CONVEYOR BELTING

Whether you are Canning, Freezing, Dehydrating or Pickling, the open mesh construction of La Porte Flexible Conveyor Belting will save you time and money. Besides, it facilitates sterilizing with steam guns or scalding water, also provides a perfectly smooth surface for containers empty or filled. Cuts packaging and shipping costs, too.

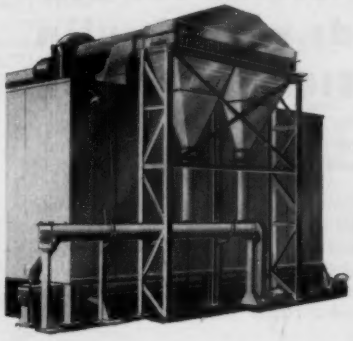
For maximum service with minimum maintenance, specify La Porte Belting.

Available in ½" x 1" also 1" x 1" mesh in any length and practically any width.

Ask your Mill Supplier or write for illustrated literature, prices.

LA PORTE MAT AND MFG. CO.
BOX 124 La Porte, Indiana

For more data, circle 326 on Reader Service Card



leading manufacturers* of dehydrated food products insist on the DUSTEX MICROCLONE at the end of a spray dryer

MICROCLONE cast tubes with smooth interior surfaces provide a cling-free, self-cleaning action to assure maximum material recovery, and allows the dryer to operate at maximum designed production rate—*continuously*. There's no time or place for "cooking"—hence, peak flavor...greater solubility.

THE ALL METAL MICROCLONE is protrusion free—meets the highest sanitation requirements. There are no moving parts, no filters to clog, no sludge to pump. It's virtually maintenance free!

LOW INSTALLATION COST and up to 99.8% efficiency makes the MICROCLONE the leader of the field.

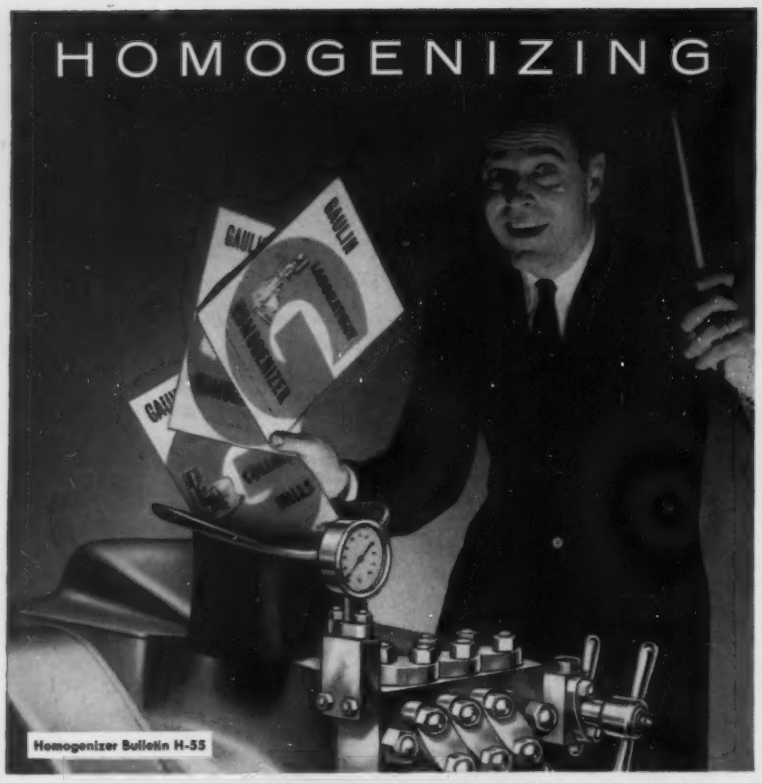
*Name on request

Write today for this free folder explaining the technical characteristics of the "quick opening" Microclone.

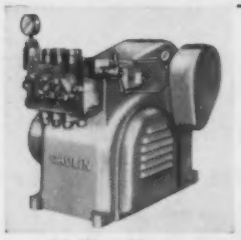
P.O. BOX 2520 • BUFFALO 25, N.Y.

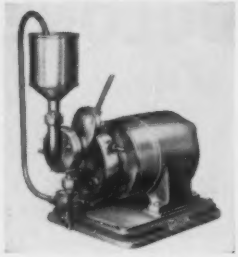
Dustex CORP.

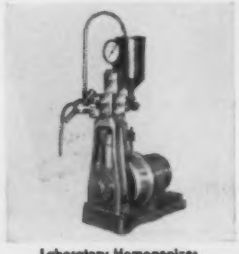
For more data, circle 327 on Reader Service Card



FREE. Send for the G.T.A. Library of Product Information G.T.A. . . . Means Gaulin Technical Assistance — best source on how to mix or move your product.


Sub-Micron Disperser Bulletin SMD-55


Colloid Mill Bulletin C-57


Laboratory Homogenizer Bulletin LH-55

New Tricks for old blends with Gaulin "PARTICLE CONTROL"

Get the jump on costs and quality! See what a Gaulin Homogenizer or Colloid Mill can do for you . . .

- Flavor Emulsions: Smaller particle size, longer shelf life.
- Juices: Controlled texture and viscosity.
- Soups and Gravies: Makes product stable to freezing or steam sterilization.
- Baby Foods: Right particle size for small stomachs.
- Syrups: For smoothness, flavor and texture.

Plus . . . superior dispersing and emulsifying for a great variety of food processing applications.

Try Homogenizing your product. Send a sample or rent Laboratory Homogenizer for only $75.00 a month. Gaulin Technical Assistance will help you bring new cost-saving solutions to processing operations.

Gaulin TRADE MARK
MANTON Gaulin MANUFACTURING CO. INC. EVERETT, MASS.

73 Garden Street, Everett 49, Mass.
World's largest manufacturer of stainless steel reciprocating, rotary, pressure exchange pumps, dispersers, homogenizers and colloid mills

Advances in Technology

pH 4.5, but it was not significant at lower pH.

Survival of yeasts were primarily a function of carbonation. Without it there was no lethality regardless of Brix or pH. In the carbonation variables, however, an increase in pH caused a significant decrease in lethality.—*Food Research*, 133–42, March-Apr. 1958.

Aerated Food Dressing

Composed of whipping cream, mayonnaise or salad dressing, and compressed inert gas, a patented food dressing is packaged in, and dispensed from, an aerosol pressure can of the usual type.

In its preparation the ingredients (approximately 2 parts 30-40% cream to 8 parts mayonnaise, salad dressing, or mixture of the two) are combined by gentle mixing at room temperature.

The free-flowing product is then packaged in aerosol pressure type cans having acid resisting linings, and gassed to about 90 psi. pressure with CO_2, N_2O_5, N_2, or mixtures thereof.

When released from the can, commingling of gas and composition produces a mass resembling whipped cream but having the flavor of mayonnaise or salad dressing that remains stable for several hours.—U.S. Patent 2,836,497, May 27, 1958.

Water-Soluble Chocolate

So-called "precursors" of chocolate flavor and aroma are water-soluble and can be extracted in aqueous solution from fermented unroasted cacao beans.

This is first step in a patented process for producing a powder having full-bodied chocolate flavor and aroma. Subsequent steps include evaporation of solution to dryness and roasting powdered extract.

As an example, 96 lb. of broken, cleaned cacao beans are placed in a vertical stainless steel pipe, with a water inlet at bottom and outlet at top. Water at about 300 F. is admitted at rate of 0.085 gpm., and a total of 6 runs are made.

Extract containing 7.6% solids, is concentrated at 125F. and 25 in. vacuum to 30% solids. It is then spray-dried yielding 15 lb. of powder that is mixed with 135 lb. sugar to make a base for an excellent flavored chocolate milk beverage.—U.S. Patent 2,835,585, May 20, 1958.

the High note of Quality is Griffith's!

A BEAUTIFUL BUILD-UP

Grffith's KRUSTO Batter and Breading Mixes are gaining preference—for better adhesion, higher pick-up and lasting crispness. Advise product you produce, how cooked, and degree of golden-brown color wanted. There's a KRUSTO Mix to match your specifications.

Why so Consarned Particular?

Griffith's PEPPEROYAL (R) and Solublized Seasonings are formulated for particular food processors. Start with Griffith's own spice extractives, processed to a higher standard of flavor. Always uniform, to assure better and predictable flavor quality — as sterile as only soluble seasonings can be! Packed airtight in unit or batch-size bags with cellophane liners. (REGAL brand contains Griffith's Sodium Ascorbate, for fast and longer lasting cured color in Corned Beef and Sausage Meats.)

"I Used to Get Pickled-But Now I'm Cured!"

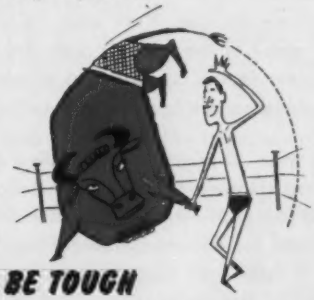
PRAGUE POWDER (R) is famous for developing maximum color and flavor in safest minimum time. There's only one PRAGUE POWDER — balanced ingredients *fused as one* in fast-dissolving crystals. For all pork, beef, and poultry curing . . . made or for use under U. S. Pat. Nos. 2,668,770-2,668,771-2,770 548-2,770,549-2,770,550 and 2,770,551.

"NO TASTE"... "HEAP BIG TASTE!"

You can't buy better MSG, the tasteless white crystals that stimulate flavor buds — make everything else taste so much better! *AND GRIFFITH'S VEGAMINE:* Here's a complete hydrolized protein with full, rich meaty flavor —a pleasing plus in quality foods.

"So Round, So Firm, So Fully..."

Griffith's Fine Golden Cereal Binder, and Grade A Pep, both top-quality binders for wieners and other sausage meats. Each helps in retention of moisture and emulsification of fats. Quality control includes Sterilization treatment. Then, take KRUSTO "S" with that home-baked flavor of crumb-loaf for meat loaves. Fat-free, it is exceptional in binding action. And Griffith's KRAKR FLOUR F-89 . . . another product purified by Sterilization treatment is formulated for frozen cream sauces, soups and gravies.



TAMES WOULD-BE TOUGH

Any of Griffith's successful Seasoning and Tenderizer formulas will make tough beef tender. All are produced and tested for instant tenderizing action in high-speed production. Perform two functions instantaneously in the dip: (1) Upgrades tender quality of low-grade carcasses, and (2) Enhances the flavor quality of such cuts.

THE GRIFFITH LABORATORIES, INC.

CHICAGO 9, 1415 W. 37th St. • UNION, N. J., 855 Rahway Ave. • LOS ANGELES 58, 4900 Gifford Ave.

Griffith's

For more data, circle 329 on Reader Service Card

Kerr glassware stacks up fine in HOERNER BOXES

THE KERR GLASS MANUFACTURING CORPORATION is famous for the mason jars American housewives use in home canning. Kerr also manufactures glassware for many of the nation's giant food packers. A noted pioneer in the development of glass jars, Kerr has made important contributions to this industry.

For over 30 years Kerr has relied on HOERNER corrugated shipping containers for the complete protection and safe delivery of its glassware. Because of Kerr's reputation for uncompromisingly high standards of quality . . . from raw materials to delivery of finished products . . . this association is one of which HOERNER is particularly proud.

HOW A HOERNER PACKAGING ENGINEER CAN HELP YOU

As a service to you, a Hoerner Packaging Engineer will make a study of your packaging operations without cost or obligation. No matter what you package, he can probably help you cut your labor and shipping costs and damage losses. For this valuable survey, just write to "Hoerner Packaging Engineer" at any of the Hoerner plants listed below.

PACKAGING ENGINEERS—
Designers and manufacturers of corrugated boxes.

HOERNER BOXES, INC.

Hoerner

GENERAL OFFICES: 600 Morgan Street, Keokuk, Iowa

PLANTS: Keokuk, Des Moines and Ottumwa, Iowa • Sand Springs, Oklahoma • Fort Smith and Little Rock, Arkansas
Sioux Falls, South Dakota • Minneapolis, Minnesota • Fort Worth, Texas • Mexico City, Mexico

Kathabar® systems maintain spaces at 80 F and 55% RH, or lower, for processing, storage, and testing!

You can pick the best production weather you've ever had, and reproduce it every day of the year. You can set the exact storage temperatures and humidities which are ideal for your product. And in your testing lab, you can imitate any climate on earth.

All of this you can do economically with a Kathabar-engineered air conditioning system. In many applications, cooling can be accomplished with available water (e.g., a Kathabar system can reduce 72 F dew point air to 46 F dew point with 85 F cooling tower water). Refrigeration, when needed, is free to handle only sensible cooling with minimum tonnage and higher suction temperatures—without frost or duplicate coils. No overcooling or reheating necessary.

let's look at cases

This sampling of Kathabar installations will show you how effective and versatile a Kathabar system can be.

9 climates for candy

Candy's sold seasonally, but manufacturing economy demands uniform production throughout the year. A Chicago company uses Kathabar systems to store different types of candy in 9 separate zones. Humidities range from 12 to 50% RH; temperatures, 50 to 85 F.

zoned for profits

Another candy manufacturer spots individual Kathabar units and cooling units to fit the varied requirements of drying, chilling, polishing, coating, bottoming, packaging, storage, and comfort. One example of Kathabar-earned profits: polishing time cut in half.

ethical competition

In the high-volume, low-margin pharmaceutical industry, companies always seek new ways to reduce costs and improve quality control. One of the biggest companies achieves both with Kathabar systems in over 100 air conditioning zones. Outside weather can not interrupt processes. As a bonus, Kathabar systems deliver sterile air.

getting jets off the ground

The chemicals in solid rocket fuels are extremely hygroscopic, and must be dried before use. Kathabar systems protect their physical properties and insure accurate ballistic results. Process areas are maintained at precise conditions, even when hosed down frequently.

relieving printers' headaches

Kathabar systems keep printing papers from getting too wet or too dry; improve ink distribution and drying; eliminate the variables in plate-making. Printers earn new profits with more press time, fewer schedule upsets.

fast compressor assembly

Water vapor in a refrigerator compressor could cause obvious troubles. A Kathabar system enabled a large manufacturer to switch from batch to continuous drying—and cut production time, handling, and manpower.

who uses Kathabar systems

Kathabar systems make profits out of air for these industries:

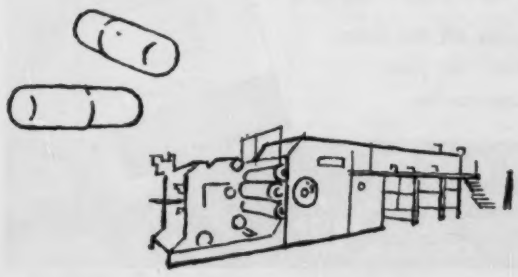
Atomic Energy	Machining
Breweries	Matches
Cake Mix	Marine
Candy	Meat
Cellophane	Offices
Cellulose	Ordnance
Cereals	Paper
Chemicals	Pharmaceuticals
Coffee	Plastics
Comfort	Printing
Compressors	Rockets
Cookies	Rubber
Electronics	Shellac
Explosives	Sugar
Film	Sanitaryware
Foundries	Testing
Gelatin	Textiles
Glass	Transformers
Glue	Transistors
Gum	Vacuum Tubes
Hospitals	Varnish
Hotels	Waterworks
Lacquer	Wire
Lenses	Yeast

how they use Kathabar systems

Many of these industries use Kathabar systems to maintain spaces at 80 F and 55% RH or lower. Others use them to (1) obtain continuous air at sub-freezing dry bulb and dew points; (2) eliminate condensation; (3) maintain spaces at specific low bacteria or mold count; and (4) improve drying processes.

send description of your problem

Air Conditioning and Drying Division
SURFACE COMBUSTION CORPORATION
2382 Dorr Street Toledo 1, Ohio



Kathabar systems by Surface

←For more data, circle 330 on Reader Service Card

For more data, circle 331 on Reader Service Card

YORK Rotary Portion Former

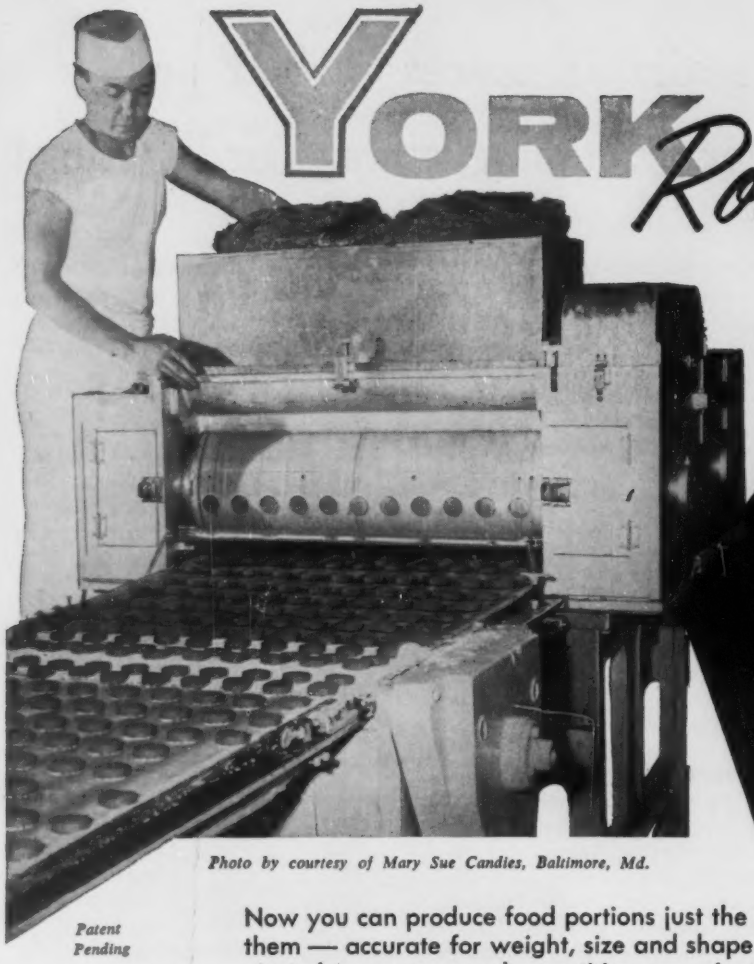


Photo by courtesy of Mary Sue Candies, Baltimore, Md.

Cuts Costs...
increases production of uniform portions.

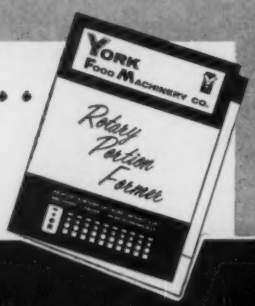
Patent Pending

Now you can produce food portions just the way you want them — accurate for weight, size and shape and uniformly ejected in unsurpassed quantities per minute — with the York Rotary Portion Former.

- Operating on a new principle, the York Portion Former does not extrude but forms and shapes each portion individually.
- Vacuum forming prevents damage to the most delicate ingredients so that a wide variety of foods and food mixtures may be used.
- Can deposit 1800 small pieces per minute and handle 2500 lbs. of material per hour. Each machine is equipped with a variable speed regulator.
- Continuous operation through to fryer or freezer requires no storage between processing stages. Saves valuable plant space.
- Cuts costs, too! One York Rotary Portion Former paid for itself in only four months, through reduced labor time and costs.

York Rotary Portion Formers are available in three sizes: 16", 24" and 32" widths.

Free Brochure . .
gives all the facts.
Send for your
copy today.



YORK FOOD MACHINERY CO.

BOX 1461
YORK 2, PA.

PLANT: Columbia 2, Pa.
PHONE: MUtual 4-2138

Manufacturing Agent: John C. Motter Printing Press Co., York, Pa.

MEN & COMPANIES

Oliver E. Seegelken

No More Hucksters? . . . Everybody wins when the marketing man is on his toes—consumers, distributors, and stockholders.

So says Ollie Seegelken.

But the pitch is different nowadays. Or rather, according to California Packing Corp.'s new marketing v.-p., the pitch is *out*.

"Marketing has ceased to be a pitchman's job," he declares. "You've got to give the consumer what he wants, when and where he wants it, at a price he can and will pay—and make a profit in the process.

"That takes *facts* and men who can put the facts to work."

Mr. Seegelken joined "Del Monte" sales in 1919. He has been a Calpak director since '54, and general sales director since '55.

Calpak has reported record sales for the past year, but a "profit squeeze," due to overproduction, excess packs, and intense competition among canners.

Kitchens Boosted . . . General Foods has upped its kitchens director, Ellen-Ann Dunham, to v.-p.

And, according to President Chas. G. Mortimer, GF kitchens will play a big role in capturing tomorrow's market.

U.S. growth statistics promise over 2½ million new mouths to feed each year.

But, profit-wise, filling them means more than "logistics," says GF head. It means selling them on *better* foods.

How? Well, for one way, GF kitchens will "create and distribute mouth-watering recipes that take the gamble out of cooking, and stimulate the home cook's creativeness."

Miss Dunham is GF's first woman v.-p. Beginning as lab technician in 1922, she became kitchens chief in '47.

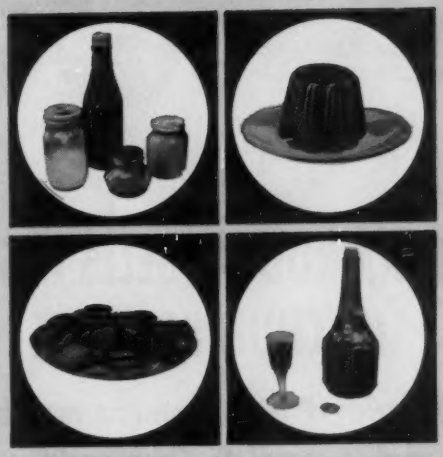
Ellen-Ann Dunham

Other new GF v.-p.'s are C. A. Kolb, trade relations; and Albert L. Cuff, general counsel.

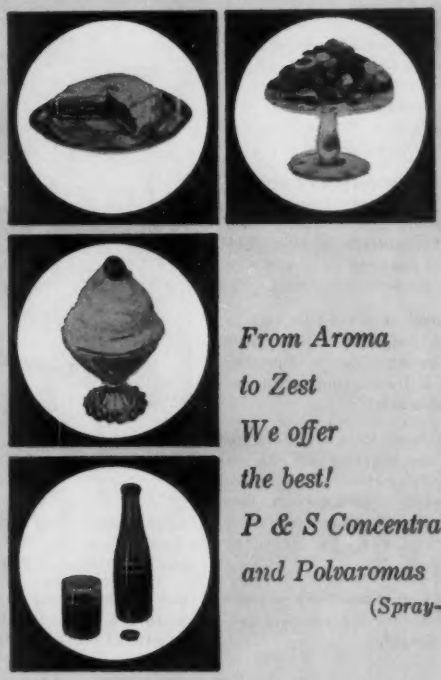
Dr. Walter A. Maclinn

Food Scientist Heads Refrigeration Research . . . H. C. (Dutch) Diehl, director of Refrigeration Research Foundation, Colorado Springs, since its founding in 1943, is retiring.

New head is Dr. Walter A. Maclinn. He has been chairman of dept. of food science at Rutgers U. He was executive officer and asst. director of Food & Container Research Institute, during World War II.



SAVOR *with* P&S FLAVOR!

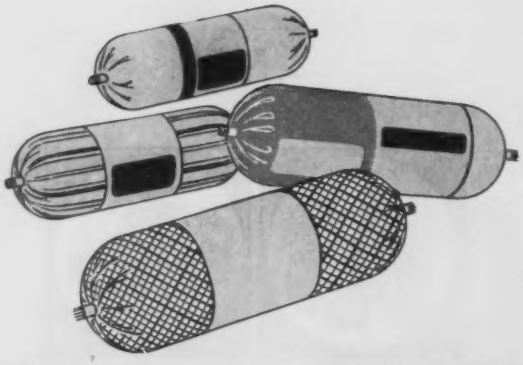


From Aroma
to Zest
We offer
the best!
P & S Concentrates
and Polvaromas
(Spray-dried)

POLAK & SCHWARZ INC.

667 WASHINGTON ST., NEW YORK 14, N. Y.

Offices: Chicago, Ill.; Los Angeles, Calif.; Toronto, Can.; Plants: Teterboro & Guttenberg, N. J.; Culver City, Calif.; New York, N. Y.



YOUR PRODUCT SELLS FASTER IN "CHUB" PACKAGE

Kartridg-Pak's automatic machine makes complete Chub packages in sizes from 4 to 16 oz.

Forms, fills, and closes 1800 packages per hour Continuous — Automatic

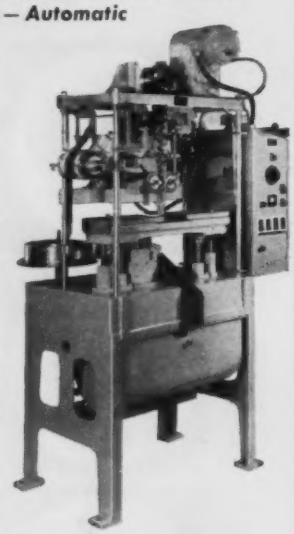
Makes a uniform, attractive package which means more impulse sales—more repeat sales for your product. And it's a convenient package for consumers to use. Gives added protection to your product.

Forms the package from flat roll stock thermoplastic film —saran, polyethylene, and others. Machine automatically closes package ends with wire clips made from roll stock wire.

Printed or plain film can be used. Package identification can be made by use of printed film, or by attaching attractive band labels.

Less total film and less labor are required with this automatic machine which means lower production costs. Flat film results in reduced film costs. Only one operator needed.

Machine accurately meters a semi-viscous product to control weight.



Floor space is saved. Machine is compact. Size 4 ft. wide x 3 ft. deep x 7 ft. high.

Low upkeep and maintenance are assured by the experience of present users.

For further details see Kartridg-Pak Representative

Kartridg-Pak Machine Co.

1241 NORTH SEDGWICK STREET, CHICAGO, ILLINOIS

Harris Perlstein (left) and James C. Windham

Blue Ribbon Prexy . . . Chalk up a further score for Harris Perlstein, 65, who successfully defended his management title against dissident Pabst stockholders this past April.

Pabst Brewing Co. has acquired the "business and assets" of Blatz Brewing Co., at upwards of $14.5 million, and Pabst's long-time skipper has found a man to whom he can relinquish the helm—James C. Windham, 44, "a younger man with proved success."

Mr. Perlstein again becomes board chairman. He climbed down in Oct. '57 to take over the presidency.

Mr. Windham joined Schenley Industries as v.-p. and controller in Jan. '55, and moved to presidency of its subsidiary, Blatz, in Mar. '56. Thereafter, sales rate of Blatz more than doubled.

Combined initial sales of Pabst and Blatz will be over 4 million bbl. annually. Back in '52, Pabst sold 4,600,000 bbl., placing 3rd among nation's brewers. It has since slid to 8th, with '57 sales (est.) of 2,900,000.

William T. Brady, president of Corn Products Refining Co., will chairman Instrument Society of America's honorary committee for its executives day program at ISA's Philadelphia meeting scheduled this month.

William B. Clements, 35, has been upped to v.-p., gen. mgr.-production for Seabrook Farms, N. J. He joined firm in '56. It reports a profit of $162,482 for fiscal '58 in contrast to loss of $98,746 for preceding year. President John M. Seabrook attributed improved showing to lowered production costs.

Dr. Samuel A. Goldblith of M.I.T. is now president of Phi Tau Sigma, food science honor society. V.-p. is **Fred C. Baselt** of American Can Co., and sec'y-treas. is **Robert E. Buck,** of H. J. Heinz Co.

John A. Hauser, head of C. H. Musselman Co., Biglersville, Pa., has been chosen president of International Apple Assn.

J. H. Hulse is new president of Canadian IFT.

Paul L. Kohnstamm, head of H. Kohnstamm & Co., Inc., New York City, has been elected to Young Presidents' Organization.

Maj. Gen. Hugh Mackintosh has become exec. director for military subsistence. He will direct $700 million procurement operations headquartered in Chicago.

Industry

Consolidated Foods Corp.'s Monarch Finer Foods Div. has launched construction of $1 million distribution plant in Columbus, O.

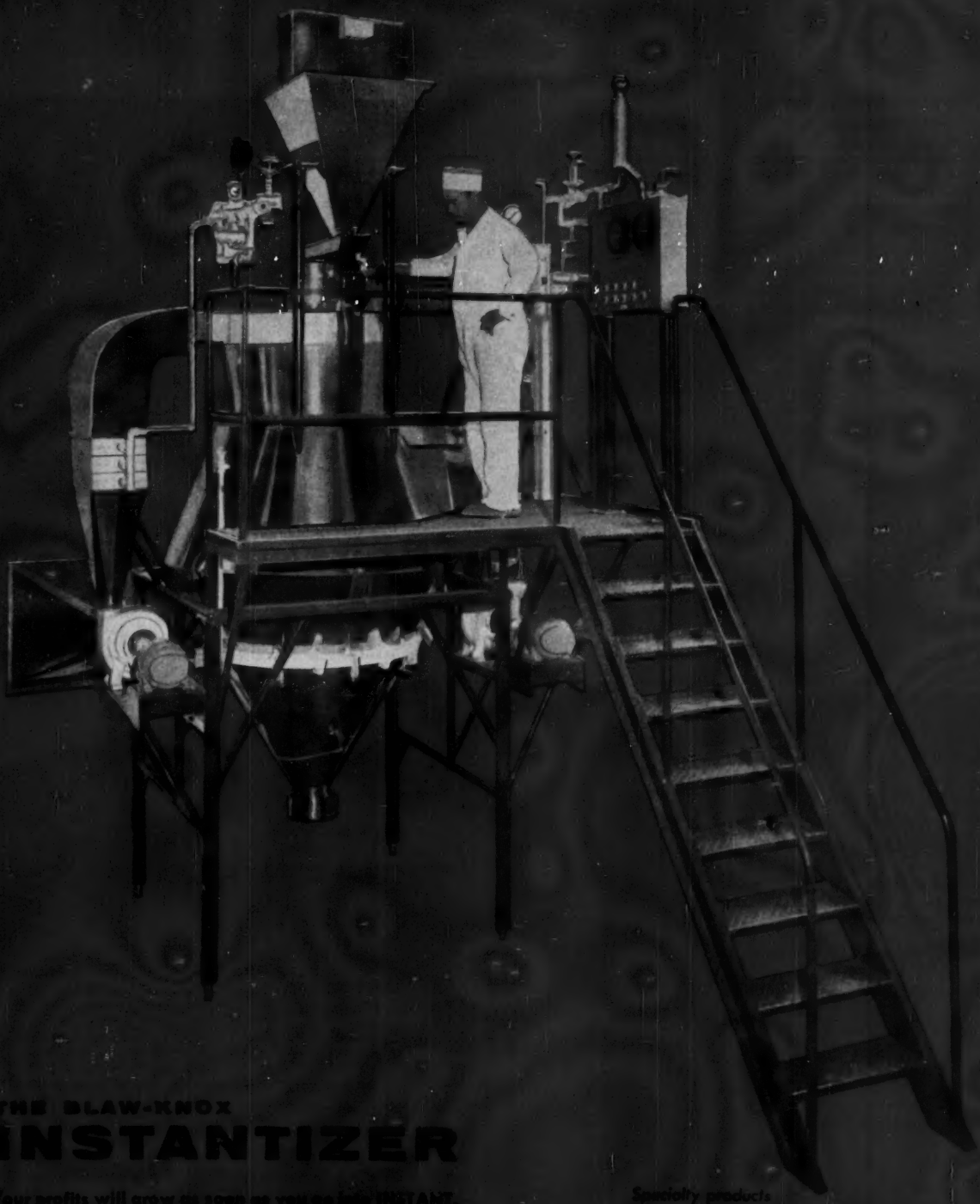
Fran Mushroom Co., consisting of the 5 Frangella brothers, has opened a plant in Ravena, N. Y. It will process and pack the 1,500,000 lb. of mushrooms grown annually by the firm. (Total U.S. crop is 80,000,000 lb.)

Glidden Co. will transfer its Chemurgy Div. to **Central Soya Co.,** Fort Wayne, Ind., as per jointly announced agreement.

Hammond-Standish & Co., Detroit meat packer, hopes for "relief from some of the company's financial problems through outside aid," according to its recently elected president, Paul Jones. Out of

For more data, circle 334 on Reader Service Card

For more data, circle 345 on Reader Service Card



THE BLAW-KNOX

INSTANTIZER

Your profits will grow as soon as you go fully INSTANT. Instant milk powder is produced simply and economically with the Blaw-Knox Instantizer. Critical spray drying operations are not necessary to produce an "instant" product. Now, with new advances in the Blaw-Knox Instantizer you can produce a durable powder free of product deterioration. This instantability with no off-flavor is gained by holding heat, moisture and process time to the minimum.

The Blaw-Knox Instantizer is effective on nonfat milk, chocolate blends, cocoa, and many other products which might require low bulk density.

Specialty products earn premium prices. Let Blaw-Knox experience work for you. Send for the latest Instantizer bulletin.

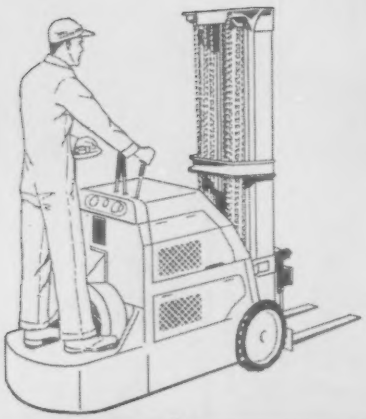
BLAW-KNOX

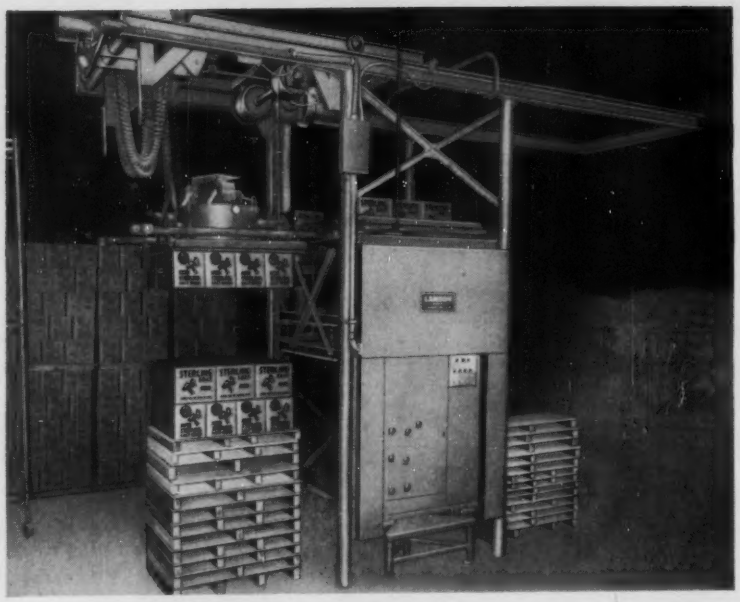
BLAW-KNOX COMPANY
Dairy Equipment Division
24 North Walnut Ave., Mora, Minnesota

LAMSON "G"

INTERNATIONAL SALT CO.
Watkins Glen, N. Y.

This low-cost loader is speeding shipments while improving working conditions, and has reduced production costs in this highly competitive market.





NEW...

LOW COST TWO LINE FILLER

TYPE 15 NH 2

Hope

- Simple adjustment for different height containers (no changing of nozzles)
- Rising table "bottom up fill"
- Diagonal filling saves space, easier handling
- "No container-no fill," each line
- Accurate positioning
- Micrometer quantity adjustment
- 15 to 30 cycles speed range
- For liquid, viscous or semi-viscous products
- Lowest priced 2 line filler

Write for details

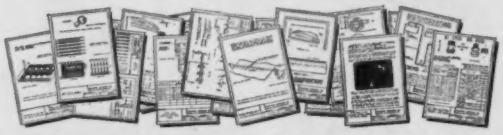
HOPE MACHINE COMPANY
9400-40 STATE ROAD • PHILA. 14, PA.

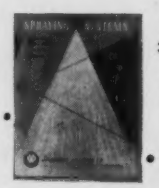
---

got a
SPRAY NOZZLE
problem?

perhaps one of our **DATA SHEETS** *can suggest a solution*

For almost every spraying application, there's a Spraying Systems Data Sheet that gives useful information on suggested installations and types of nozzles to use. If you have a problem, write and let us know the application involved . . . and we'll send the Data Sheet that applies.





SPRAYING SYSTEMS CO.
3212 RANDOLPH STREET • BELLWOOD, ILLINOIS

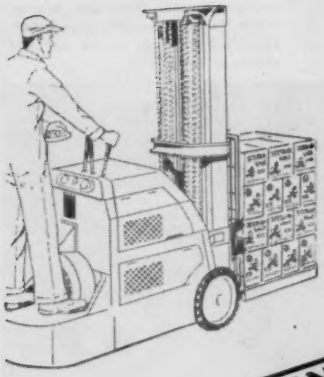
And . . . for complete spray nozzle information, write for Catalog 24.

For more data, circle 336 on Reader Service Card

For more data, circle 337 on Reader Service Card

PALLET LOADER

Profitable even at 10 cartons a minute



At a rate of only 10 sealed cartons a minute, you can profit from automatic palletization by installing the *moderately-priced* Lamson G Pallet Loader. Designed expressly for the plant whose volume does not justify the purchase of high-speed loaders. The Model G is an economically sound investment even if you employ only one operator per shift on a two-shift operation.

Fully automatic, the Model G is designed for use with 2-way and 4-way pallets, paper pallets, or without pallets to complement clamp truck operation. Completely flexible in forming interlocking patterns. It is easily installed . . . there is no complicated pallet feed mechanism . . . no pits are needed.

The Lamson field engineer in your area would be pleased to study *your* operation—to prove the value to your organization of *low-cost* automatic palletization.

LAMSON

LAMSON CORPORATION
907 Lamson Street, Syracuse 1, New York
Plants in Syracuse and San Francisco • Offices in Principal Cities

Manufacturers of Airtubes® (Pneumatic Tube Systems) • Integrated Conveying Systems • Pallet Loaders • Selective Vertical Conveyors • Bookveyors® • Clinical History Lifts • Trayveyors® • Food Service Systems • Blowers and Exhausters • Exidust® Central Vacuum Cleaning Systems • Dryset® Air Vacuum Systems • Mobilift® Industrial Trucks

®Trade Mark

For more data, circle 338 on Reader Service Card

receivership since Feb. '56, but still ploughing through tough times, the concern is exploring merger possibilities.

H. J. Heinz Co. has reported that extra business through its foreign subsidiaries upped total sales in fiscal '58 by 5% over '57's. This despite a drop in firm's overall U.S. business.

Ralph M. Parsons Co., L.A., will establish a $23 million sugar cane plantation and refinery in Iran. Hawaiian Sugar Co., Ltd., a subsidiary of C. Brewer & Co., Ltd., is assisting.

Pillsbury Mills, Inc., is opening a distribution center at Harrisburg. Firm says it is to be "a materials handling laboratory in which we can test new methods and equipment for moving products in mass volumes." The company has reported record sales (up 5%) and earnings (up 44%) for fiscal '58. Capital expenditures were $4.8 million, while some $7 million is forecast for '59.

Pasco Packing Co., Dade City, Fla., will pack only concentrates this season, excluding single strength items because of the short crop.

Rosenberg Bros. & Co., a subsidiary of Consolidated Foods Corp., is winding up all its packing operations. Latest move is sale of its dried fruit and nut business to Mayfair Packing Co., San Jose, Calif.

Associated Industries

Chase Bag Co. has purchased polyethylene film extruding machinery and processes of Plax Corp., Hartford, Conn.

Lauren B. Hitchcock Associates is new firm of chemical engineers located in the Lincoln Bldg., New York City. Dr. Hitchcock was formerly v.-p. of Quaker Oats Chemical Dept., and president of National Dairy Research Labs.

Mellon Institute's 32-yr. director of research, Dr. George Denton Beal, is retiring.

Reynolds Metals Co. has formally opened its new multi-million dollar home—"an aluminum showcase" containing 1,235,000 lb. of aluminum—at Richmond, Va.

Standard Packaging Corp. shareholders have approved plans of merger with Eastern Corp. of Bangor, Me.

Sutherland Paper Co., Kalamazoo, Mich., will build $1.5 million converting plant at Albany, Ga.

Triangle Package Mchy. Co. has opened a West L.A. office and warehouse.

Striking bust of Francis P. Cutting is presented to San Francisco by Calif. canners and can-makers. A century ago, Cutting founded city's first food cannery. Left to right: George Christopher, mayor of S.F.; H. C. Davis, president, Canners League of Calif.; R. C. Stolk, v-p., American Can Co.; Lia di Leo, sculptress.

FOAMGLAS® / waterproof, vapor-proof, strong, can't burn,
INSULATION / acid-proof, vermin-proof, dimensionally stable

Maurice Warner, Plant Engineer

A single workman at the new Ocala warehouse installs a multi-layer insulating wall of FOAMGLAS. Applied to the asphalt covered building block wall, FOAMGLAS provides a moisture-proof, fire-proof storage room. The lightweight, easy-to-handle blocks can be easily cut with ordinary tools.

For their new fruit concentrate warehouse . . . **LIBBY PICKED FOAMGLAS INSULATION TO KEEP CONSTRUCTION COSTS DOWN . . . INSULATION VALUE UP**

Cases of orange and lemon juice cans are safely stored from a spoiling hot Florida sun in —10°F envelope sealed tight by FOAMGLAS insulation. Used in the flooring, walls and ceiling, FOAMGLAS even forms the inside wall finish. Cases stacked better than 20 feet high attest to the unusual compressive strength of FOAMGLAS floor insulation, able to carry up to 7 tons per square foot.

Libby, McNeill and Libby cut construction costs in their new lemon and orange concentrate storage rooms at Ocala, Florida with strong, moisture-proof FOAMGLAS.

Maurice Warner, Company Plant Engineer, explained, "We picked FOAMGLAS insulation, first, because the strength and rigidity of FOAMGLAS enabled us to build free-standing walls of insulation, thus eliminating costly structural supports.

"And secondly . . . the highly perishable nature of fruit concentrate demands a constant —10°F temperature. This requires efficient insulation that remains unaffected by the excess condensation resulting from the wide temperature variations common to this area.

"Since the closed glass cell structure of FOAMGLAS makes it moisture and vapor proof, it stays dry . . . assuring us constant insulating efficiency and contributing toward low refrigerating costs."

Write us today for a free sample block and directions for six simple at-your-desk tests. Prove to yourself the value of FOAMGLAS for your particular insulation needs in walls, floors, ceilings, roofs, piping or equipment. Write to: Dept. O-98, One Gateway Center, Pittsburgh 22, Pennsylvania. In Canada: 57 Bloor Street West, Toronto, Ontario.

PC Glass Blocks are another outstanding building product of Pittsburgh Corning Corporation.

PITTSBURGH PC CORNING

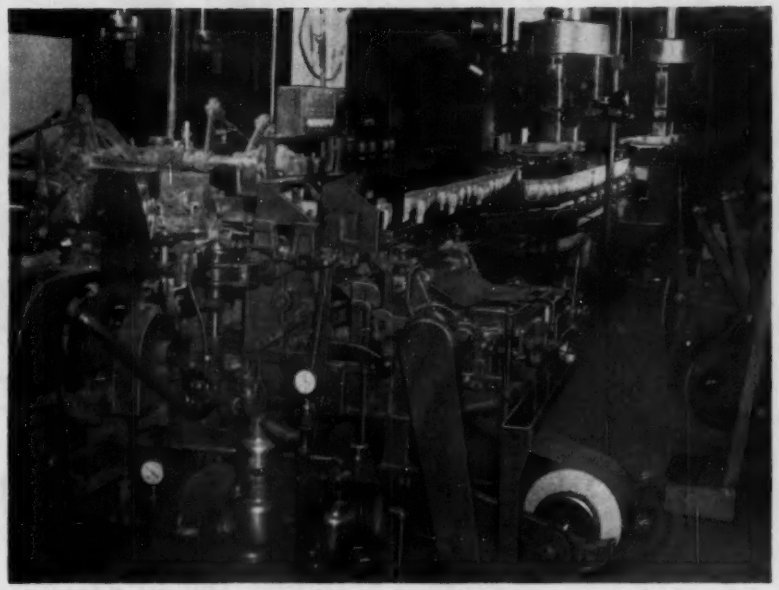
ALL READY IN A "JIFFY"

- Ready mix pioneer shows the way
- "Automatically" expands production with Pneumatic

Growth, at Chelsea Milling Company of Chelsea, Michigan, has been steady, substantial, and anything but haphazard. It has been carefully and most successfully planned, step by step, since Chelsea Milling pioneered with its first prepared "Jiffy" product—"Jiffy" Biscuit Mix—27 years ago.

Ninety-five percent of the firm's output is now in ready mixes. One hundred percent of the packaging load for the production of the eleven "Jiffy" mixes is the responsibility of Pneumatic automatic packaging equipment . . . including machines for carton forming, lining, weighing and top closing.

The sounder design, more precise construction of Pneumatic equipment pays off in more dependable operation and lower maintenance costs. These things Chelsea Milling and many others know full well, from first hand experience. With their first Pneumatic order they also discovered that Pneumatic invariably makes good on its promises of performance, delivery and all the many considerations that are part of such a purchase. Pneumatic's reputation in this respect is well known—and highly important for you to take into account when your own company is buying.

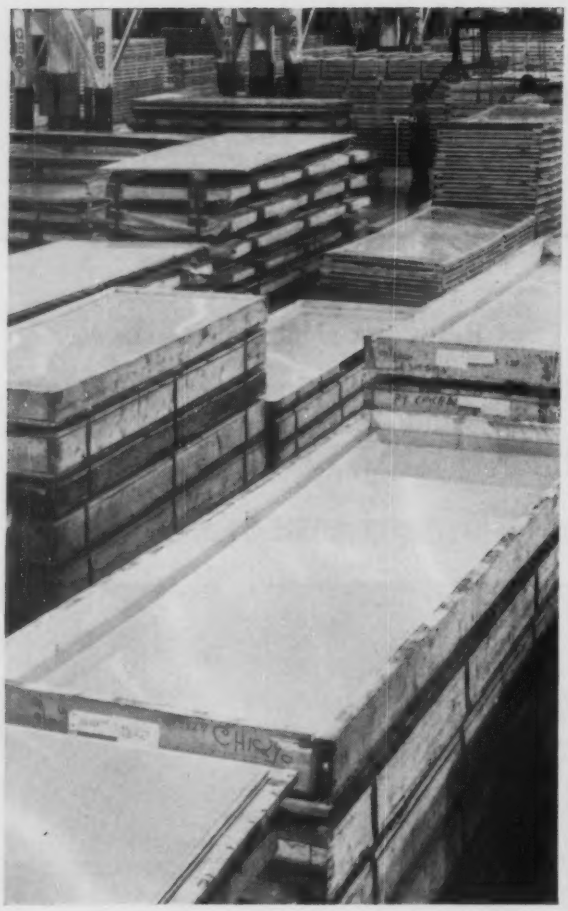


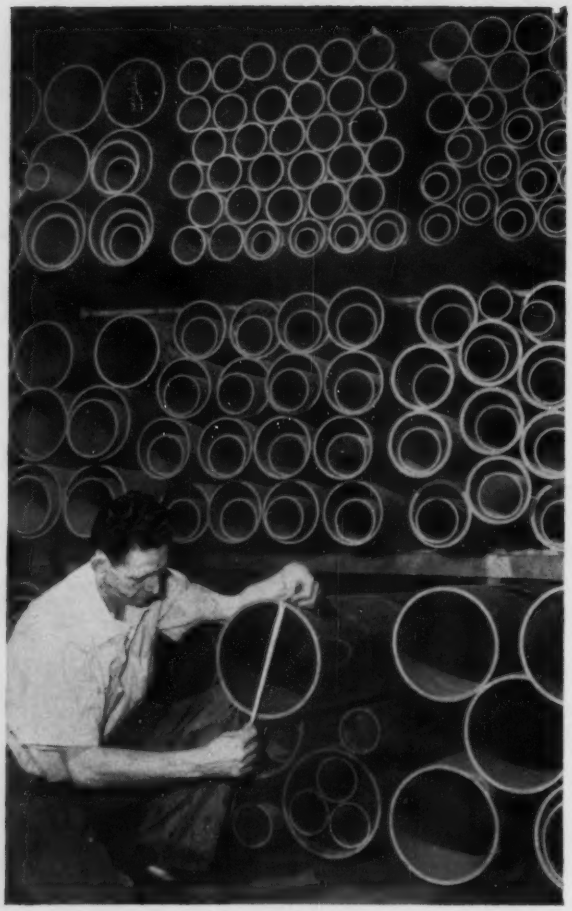
One of several Pneumatic Double Package Maker lines in operation at Chelsea Milling plant.

★ ★ ★

PNEUMATIC SCALE CORP., LTD.,
91 Newport Ave., Quincy 71, Mass.
Also: New York; Chicago; Dallas; Seattle; San Francisco; Los Angeles; Leeds, England. Canadian Division: Delamere & Williams Company, Ltd., Toronto

PNEUMATIC





Stainless . . . or Plastic

WHICH ONE SOLVES YOUR CORROSION PROBLEMS BEST?

Ryerson offers both these corrosion fighters

Where high pressure and high temperatures demand *high-strength steel*, stainless is the overwhelming choice. And when you need stainless, look to Ryerson—with 2351 kinds and sizes of sheets, plates, bars, tubing, pipe and fittings in stock. In addition, our cutting equipment is unexcelled. For example, we can cut plates up to 12′ x 25′ absolutely square on our abrasive disc saw and accurately flame-cut intricate shapes.

On many other applications the best answer to your corrosion problem may be plastic, Ryertex®-Omicron PVC (polyvinyl chloride). Exclusive from Ryerson, this lightweight, rigid plastic licks more than 280 corrosive liquids and gases. It has been successfully used, when properly installed, at operating temperatures up to 212° F. Chemically inert, PVC imparts no odors or tastes; resists weathering, rotting and "aging." Non-sparking and nonmagnetic. Offered in pipe and fittings, sheets, rods, and fabricated parts.

A Ryerson specialist will gladly give you all the facts about both these anticorrosive materials—and about Ryerson's immediate service that meets your exact requirements. Call your nearby Ryerson plant today.

INDUSTRIAL PLASTICS AND BEARINGS DIVISION

RYERSON STEEL®

Member of the INLAND Steel Family

Other Products: Ryertex-Omicron PVC pipe and fittings, sheets and rods • Babbitt metal • aluminum • carbon, alloy and stainless steel in every type, shape and size • metalworking machinery, etc.

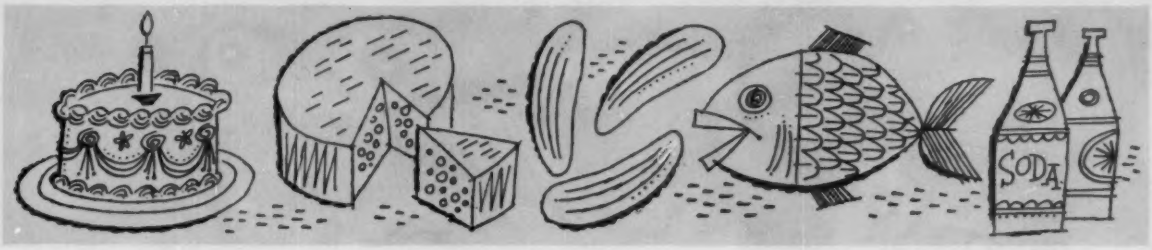
JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK · BOSTON · WALLINGFORD, CONN. · PHILADELPHIA · CHARLOTTE · CINCINNATI · CLEVELAND DETROIT · PITTSBURGH · BUFFALO · INDIANAPOLIS · CHICAGO · MILWAUKEE · ST. LOUIS · LOS ANGELES · SAN FRANCISCO · SPOKANE · SEATTLE

NEW!
more soluble!
easier to use!

SORBISTAT®-K

(Pfizer brand of Potassium Sorbate)

Effectively prevents Mold and Yeast spoilage in many food products



● **New Sorbistat-K overcomes the problem of water solubility of sorbic acid. Up to 40% solutions of potassium sorbate can now be prepared rapidly by simply dissolving Sorbistat-K in water.**

Thus, food manufacturers no longer have the problem of preparing their own soluble form of Sorbistat in order to obtain maximum usefulness from this antimycotic agent.

Cheese and cheese products, pickles, fish, soft drinks, prepared gelatin fruit salads, potato salads, chocolate syrup, cake and fruitcake are some of the products for which SORBISTAT-*K* protection is most suitable.

It is important to remember that SORBISTAT-*K* *selectively* inhibits molds and yeasts, without interfering with normal microbiological curing of cheeses.

Test for yourself the new, effective protection that SORBISTAT-*K* can give your food products. For technical information and sample, mail the coupon at right.

Mail this coupon!

Please send me free sample of new SORBISTAT-K along with technical information.

Name_____

Title_____

Company_____

_____

Address_____

City_____

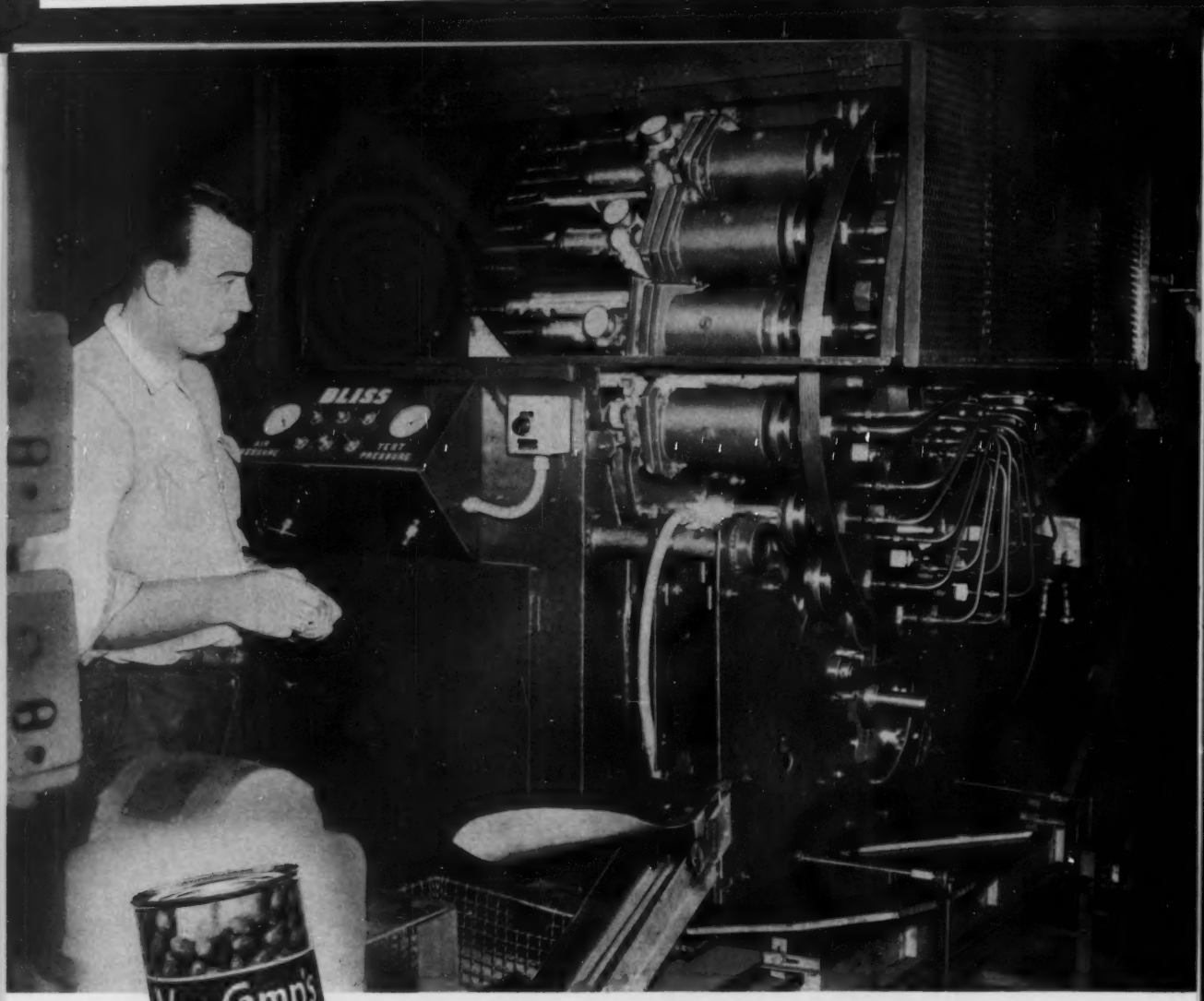
State_____

FE

Quality Ingredients for the Food Industry for Over a Century

Pfizer

CHAS. PFIZER & CO., INC.
Chemical Sales Division
630 Flushing Ave., Brooklyn 6, N. Y.
Branch Offices:
Chicago, Ill.; San Francisco, Calif.; Vernon, Calif; Atlanta, Ga.; Dallas, Texas



PORK and BEANS...

with a touch of BLISS

This can tester detects invisible "leaks"... is typical of the variety of high-efficiency Bliss equipment that Stokely-Van Camp uses to make its own cans.

If *you* make your own cans... or are thinking of it, check with Bliss. Chances are that a completely Bliss-built and equipped "turn-key" plant can take the headaches out of the job for you. But whether it's a complete plant you need, a battery of machines or a single can tester, see your Bliss representative first.

BLISS
SINCE 1857

E. W. BLISS COMPANY · Canton, Ohio

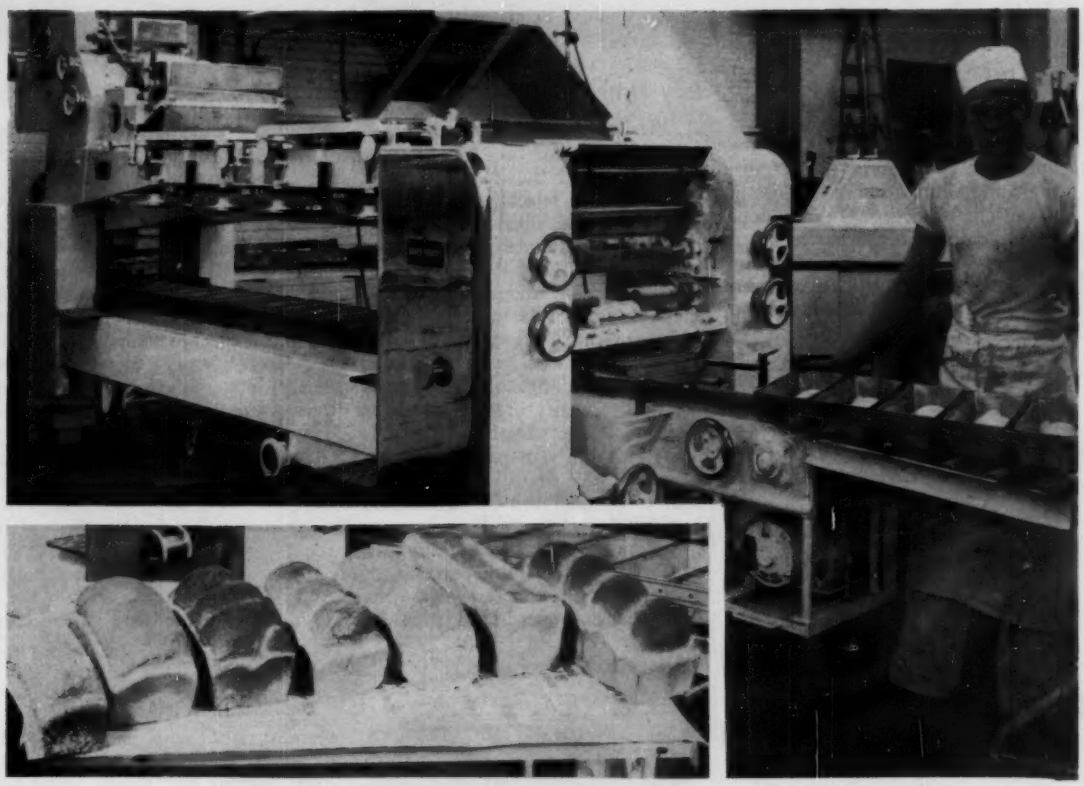
BLISS is more than a name... it's a guarantee

PRESSES • ROLLING MILLS • MILL ROLLS • DIE SETS • CAN MACHINERY • CONTRACT MFG.

FE SERVICE CENTER

Catalogs ..... p. 159
Books ..... p. 167
Patents ..... p. 171
Classified ..... p. 174
Advertisers' Index ..... p. 178
Reader Service ..... p. 180

NEW EQUIPMENT & SUPPLIES



Twisted Bread Now Produced on Automatic Line

By mechanically duplicating hand-twisting and joining of two dough pieces, this combination moulder-twister-panner now enables economical large-scale production of twisted breads (photo inset).

As a manual operation, dough twisting was relatively popular until soaring labor costs ruled it out. Advantages cited for the technique are greatly improved product texture, softness, and taste. Moreover, twisting permits formulating the dough with about 2% extra water—an important economy factor that also gives the bread another day of shelf-life, particularly in dry regions.

Today, these quality extras may again be merchandized through this latest advance in bakery automation.

The unit handles loaves up to 2 lb. at up to 45 per min., thus processes up to 90 dough pieces per min. It occupies only 16 ft. of space, and is readily adapted to producing 3- or 4-twist loaves. Selection of desired twist and adjustment for tightness takes just minutes.

There are five main components in the line—infeed conveyor, sheeting head, moulding conveyor, twisting head, and panner. In operation, dough pieces on infeed conveyor are flattened or sheeted, dusted with flour, curled, and delivered to moulding belt in a straight line. Curled pieces pass under two pressure boards that seal and extend them to proper length.

Leaving the moulding conveyor, they trip a flap that actuates dough traps and twisting mechanism, then drop into a selecting trap that opens each time the flap trips. Next, successive dough pieces are deposited

←For more data, circle 343 on Reader Service Card

into each of two pockets of a collecting trap, which releases pieces in pairs into the first of two sets of twisting cups.

Cups rotate 180 deg. in opposite directions to apply the first two twists, then deposit partially twisted loaves into a second set of cups. Latter rotate to make the third and fourth twists if both cups are in place, or only a third twist if one of the second set of cups is replaced by a stationary plate. Both sets of cups operate on every second opening of selecting trap.

Twisted loaves are held on a panning trap that deposits them into pans traveling on a conveyor. All of the above operations are pushbutton-controlled.

Field tests of unit have shown the importance of uniform proofer discharge and elimination of doubles in this automatic setup. In addition, feed rate of dough pieces from proofer to moulder head must be well synchronized with that to twisting cups.—*Baker-Perkins, Inc., Food Machinery Div., Saginaw, Mich.*

Circle 16 on Reader Service Card

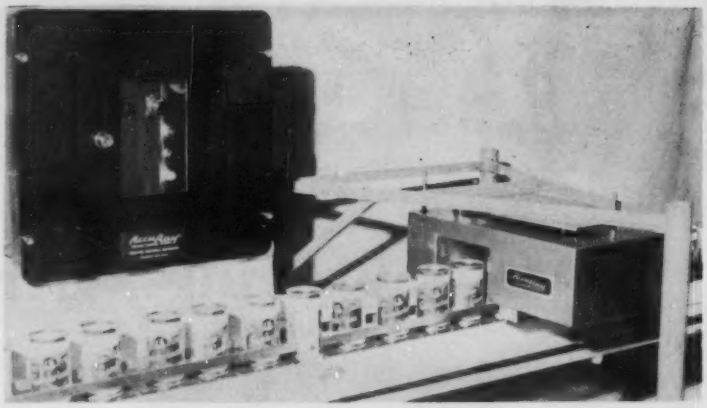
Unit Print-Forms, Wraps Both Types of Margarine

High-speed forming and wrapping of both conventional and whipped margarine are reported advantages of a new packaging machine.

Called "Votator", it handles regular ¼-lb. prints at 5,000-6,000 lb. per hr., and the whipped product (6 prints per pound) at 3,000-3,400 lb. per hr.

The unit also offers precise weight control, reduced maintenance, and rapid changeover for product type. —*Chemetron Corp., Girdler Process Equipment Div., 222 E. Broadway, Louisville, Ky.*

Circle 17 on Reader Service Card



Ray Unit Checks Container Fill at 1,000/Min.

Offering reliable, low-cost container inspection, this system accurately measures the height of filled material, then rejects from the line any can whose filled height varies from a pre-set standard.

Called AccuRay, it handles containers of many different sizes and shapes, and may be installed either before or after the capping point. With liquids, accuracy of ±1/64 in. is obtained at filling speeds of 1,000 per min. On dry products, such as cereals, accuracy tolerance depends upon uniformity of package composition and degree to which the surface of product can be maintained horizontal.

System consists of measuring head and control unit. In operation, as containers pass under measuring head, small changes in individual fill height vary the amount of energy passing from isotope source to detector. Energy variations are translated into corresponding voltages by the detector.

Control unit, designed for either panel or wall mounting, houses circuits that measure voltages received from detector and generate a reject signal whenever incoming voltage violates pre-set limits. Signal energizes mechanical or pneumatic devices to remove improperly filled can from conveyor.

Detector is 18x10x10 in., weighs 150 lb., and has a splash-proof housing that permits frequent washdown. Control unit weighs 100 lb. and is about 19x18x14 in.—*Industrial Nucleonics Corp., 1205 Chesapeake Ave., Columbus, Ohio.*

Circle 18 on Reader Service Card

Pushbutton Tanker Washing Saves Labor, Time, Water

Washing time for tank-trailers may be cut two-thirds with use of this new labor-saving device. Furthermore, it does the job efficiently with 42% less water than is required in hand washing.

Actual washing time is only 11 min. for an average tank-trailer. This makes it practical for driver to remain in cab while unit's power-driven brush operates in assembly-line fashion. It's estimated that up to 15 hr. a week can be saved for the average 10-unit fleet.

After 15 min. of familiarizing himself with washer's one-hand push-button control, operator easily scrubs in and around all curves and crevices in a continuous 360-deg. circle. After washing, equipment (Wagon-Washer) is conveniently stowed anywhere along bay wall.—*Fruehauf Trailer Co., 10941 Harper Ave., Detroit.*

Circle 19 on Reader Service Card

Want More Information?

It's free—and easy to get. Simply note here the items on which you want more details, then circle each key number (there's one at the bottom of each item) on the handy Reader Service Postcard—back of book. Then sign your name and address and mail. For your convenience, too, these items are listed and keyed in the Reader Service Section.

UNIT IN ACTION. Left: Truck-mounted frame, tilted 45 deg., backs up to container. Spring-loaded bail then engages recessed hook in bottom of container. Center: As frame is lowered, bail cylinder pulls container onto frame by ratcheting action until its center of gravity is passed. Right: Frame lowers to horizontal, then bail pulls container forward and locks it.

Simplifies Handling of Large Bulk Containers

Heavier loads may now be moved more efficiently with this new handling system of truck-mounted tilting frame and detachable containers. Primary use is seen in waste-disposal, but cargo-type containers for handling food products are under development.

Advantages cited for the system (Dempster-Dinosaur) are: Completely hydraulic handling of containers up to 40-cu. yd. capacity; better weight distribution; pick-up without driver leaving cab; and ability to transfer containers to and from docks.

Truck components include a tilting frame, two raising and lowering cylinders, and a double-acting bail cylinder. Two models are offered for over-the-road use—one handling 22,000 lb., the other 30,000 lb. Maximum container dimensions are limited only by state regulations. Off-the-road models will be available with hoisting capacities limited only by load capacity of truck.—*Dempster Brothers Inc., P. O. Box 3127, Knoxville, Tenn.*

Circle 20 on Reader Service Card

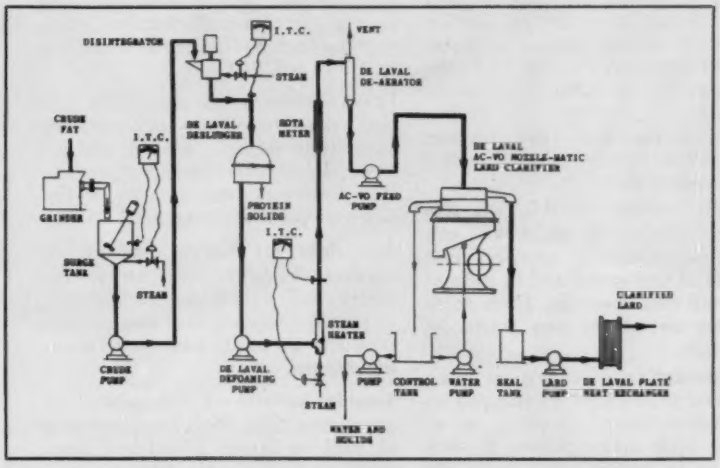
New 5-Gal.-Pail Package Cuts Handling Time 90%

Handling time for 5-gal. steel pails may be cut by 90% with use of this new packing technique.

Called "Handy-Pak," it consists of a 27-pail unit with top and bottom caps of corrugated board secured by steel straps. Empty packs can easily be carried by two men, or dragged by one man. This frees hand or powered trucks for heavier work. Pails may be stacked 15 high for considerable saving of storage space.

After filling, pails are repacked and shipped as a unit Thus, handling economy is passed on to the customer.—*Bennett Industries, Inc., Peotone, Ill.*

Circle 21 on Reader Service Card



Continuous Rendering Process Ups Fat Quality, Yield

High product yield, speed, and efficiency are reported advantages of a new continuous fat-rendering process. Operation is termed extremely flexible and only simple adjustments are required to vary plant capacity, which ranges 2,500-30,000 lb./hr.

Known as Centriflow, process employs advanced equipment for centrifugal separation, and streamlines conventional heating, disintegration, and separation. Reduced processing time and temperature enable production of high-quality fat and protein. Added benefits: Equipment requires approximately 250 sq. ft. of floor space and 14 ft. of headroom in the average plant, and one man operates the entire system.

As shown on flowsheet, fat trimmings are minced, heated, and pumped to a disintegrator, which shreds tissue and frees fat for efficient separation in a desludger. Latter is a horizontal conical-bowl centrifuge

Ingredients p. 153
Chemicals p. 154
Briefs p. 155

at Rich Products

Aerosol filling spurts 50% with rotary piston filler

During the past six months Rich Products has increased production output for aerosol packed whipped dessert topping by a full 50%. At the same time line personnel was cut by one-half.

A major reason for this increase was Rich's switch to a Pfaudler rotary piston filler.

Fast fill without spill—Rich fills from 20,000 to 40,000 seven- and twelve-ounce cans in an 8 hr. day. In spite of this speed and in spite of the small can openings, Rich holds accuracy to one or two grams on both sizes.

Easy sanitation—There's no place for a food product to get trapped on a Pfaudler filler. Cleaning is so simple, Rich accomplishes it with one man in just one-half hour. He removes only two parts at each station to get thorough cleaning. Rich reports that the bacteria count on toppings is ZERO.

Easy maintenance, too—Rich has had absolutely no maintenance other than routine cleaning and lubrication. Not one minute of production time has been lost to breakdown or parts replacement.

Just right for heavy products in aerosol—Pfaudler fillers are particularly well suited to heavy foods like Rich's topping and also to such products as tooth paste and shaving creams.

Send for bulletin—For details on the six-station filler Rich Products uses as well as larger Pfaudler Fillers, write for Bulletin No. 911.

Pfaudler **FOOD EQUIPMENT**

THE PFAUDLER CO., *a division of* **PFAUDLER PERMUTIT INC.**
Dept. FE-98, ROCHESTER 3, NEW YORK

Please send bulletins on ☐ Heat Exchangers; ☐ Rotary Piston Fillers; ☐ Glassed-Steel Storage Tanks; ☐ Centrifuges; ☐ Dryer-Blenders; ☐ Wiped-Film Evaporators.

Name.....

Title.....

Company.....

Street.....

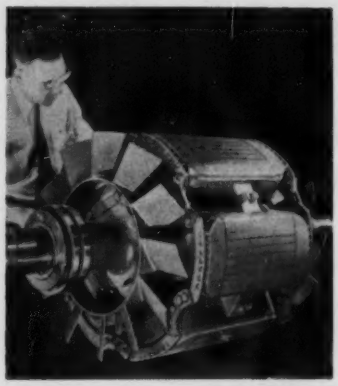
City.....Zone.....State.....

with screw-type conveyor for continuous discharge.

Discharged fat is further heated before passing through a continuous deaerator for removal of light fractions to improve flavor. It is then discharged directly into a purifier that removes fine protein traces and residual moisture. Product is finally cooled for packaging.

Enclosed heating and purification avoid oxidation of fat. Key units that contact the fat are stainless steel, and system is easily cleaned by flushing with hot water or cleaning solution.—*De Laval Separator Co., Poughkeepsie, N. Y.*

Circle 22 on Reader Service Card



Resistant Coil Insulation Widens Open-Motor Use

Seen broadening the application of open-type motors is a new line with built-in protection termed adequate for many applications formerly calling for costly protective enclosures.

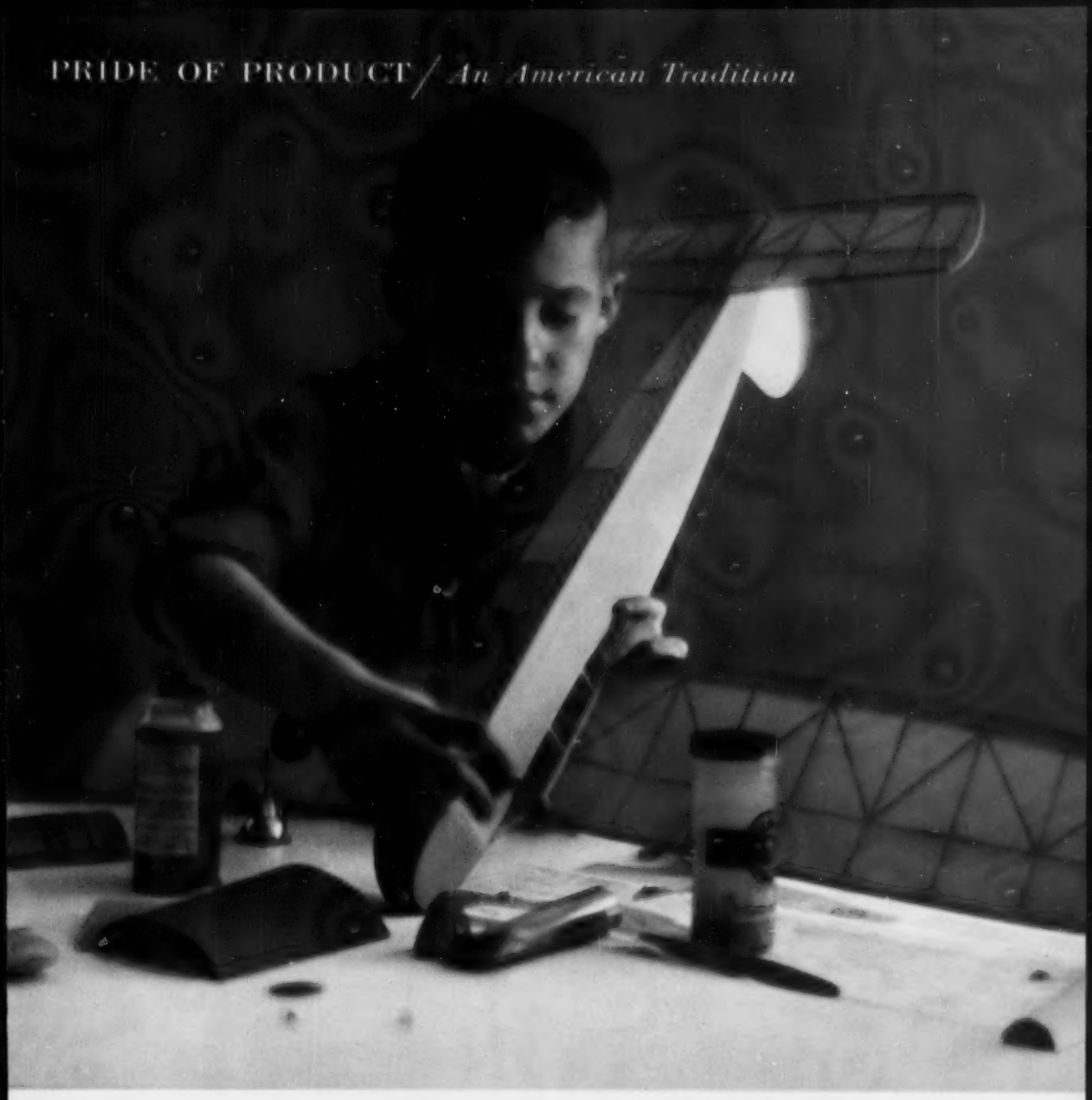
Known as Super-Seal, units offer: (1) Silicone-rubber insulation on form-wound stator coils of large motors; and (2) epoxy-encapsulated coils for field windings of large synchronous-motor rotors, and for the stators of smaller-frame units with random or mush-wound coils.

Insulation is vulcanized into a solid dielectric wall without joints, voids, or breaks. Thus, it is virtually unaffected by either humid or dessicating conditions. Long periods of water immersion reduce insulation resistance somewhat, but not to the point of actual electrical breakdown.

Encapsulated stator windings are equally well sealed, as evidenced by extended immersion tests.—*Allis-Chalmers Mfg. Co., General Products Div., Milwaukee.*

Circle 23 on Reader Service Card

PRIDE OF PRODUCT / *An American Tradition*



You put pride in your product...so does FROSTKRAFT. Our product is *packaging*. Any product that needs *kraft* deserves FROSTKRAFT.

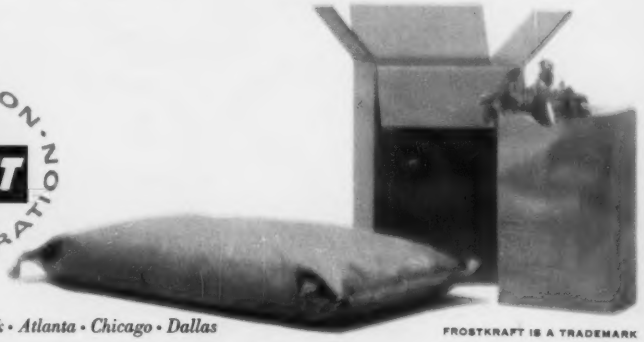
CORRUGATED CONTAINERS

STANDARD AND SPECIALTY BAGS

MULTIWALL SHIPPING SACKS

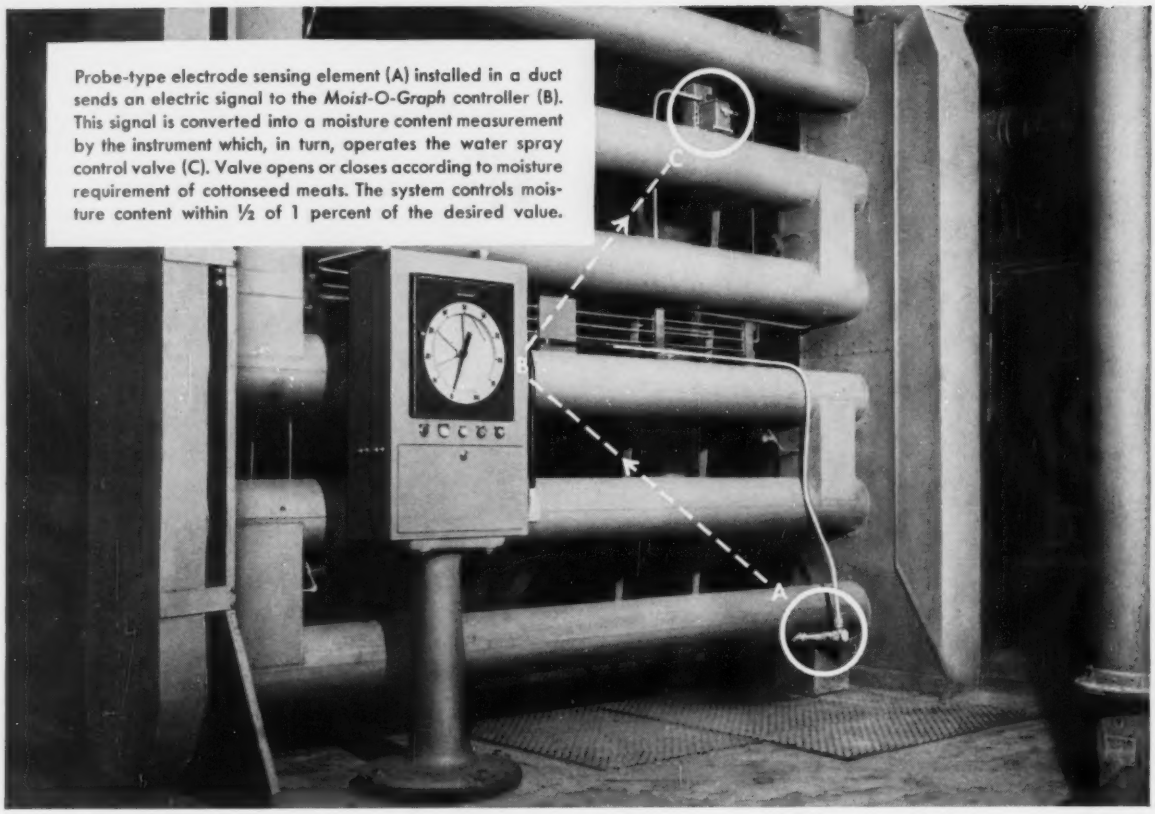
OLIN MATHIESON CHEMICAL CORPORATION

FROSTKRAFT



Forest Products Division, West Monroe, La. • District Sales Offices: New York • Atlanta • Chicago • Dallas

FROSTKRAFT IS A TRADEMARK



Probe-type electrode sensing element (A) installed in a duct sends an electric signal to the *Moist-O-Graph* controller (B). This signal is converted into a moisture content measurement by the instrument which, in turn, operates the water spray control valve (C). Valve opens or closes according to moisture requirement of cottonseed meats. The system controls moisture content within ½ of 1 percent of the desired value.

Products improved, costs cut . . .

by Honeywell moisture control system in cottonseed processing

Accurate moisture control is the key to profitable production of cottonseed oil and meal. J. G. Boswell Cotton Co., Litchfield Park, Arizona, keeps product quality high, saves money and increases profits with a Honeywell *Moist-O-Graph* system to measure and control moisture content of cottonseed meats before they're processed. The system has paid for itself in six months.

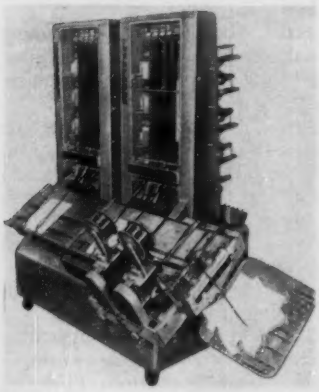
With accurate moisture control, many man-hours are saved in the cooking of the meats. In addition, conveyor lines are no longer clogged by overly moist meats, and don't have to be broken down for cleaning. Protein is easily maintained at desired level. Bulk weight yield is increased without risk of exceeding the legal limit for moisture content.

Your nearby Honeywell field engineer can help you gain the advantages of instrumentation in your own process. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.

Honeywell

H HONEYWELL *First in Control*



Vertical Collator Speeds Gathering of Papers

This 8-station collator is designed for fast, accurate, and economical gathering of printed matter.

Designated JCM Vertical, it collates up to 8 sheets, 6x7 in. to 11x14 in. Individual or double calipers automatically stop machine if any sheets are missed. Unit makes up to 32,000 pickups per hr., also gathers different colors and weights of paper.

Collator can be run at variable speed, and is available with synchronized conveyor table on which gathered sets are stitched for delivery. Portable unit occupies 3½x7 ft. of floor space.—*J. Curry Mendes Corp., Canton, Mass.*

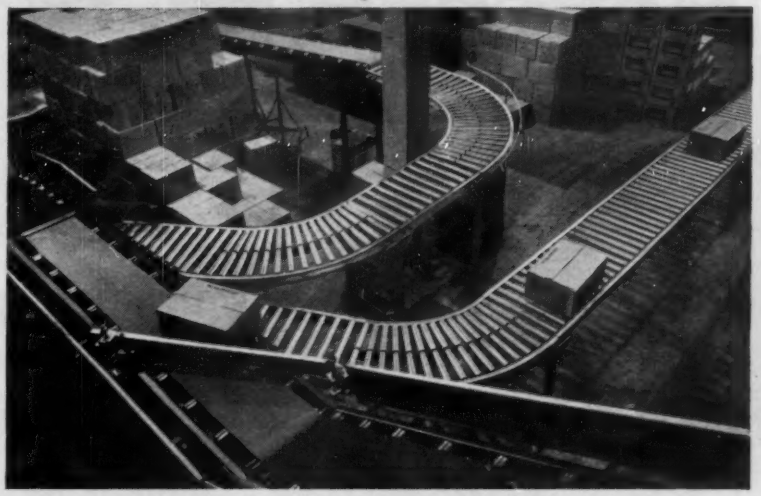
Circle 24 on Reader Service Card

Portable Unloader Eases Handling of Barrels

Truck loading and unloading of barrels may be simplified with use of this 1,000-lb.-capacity unit.

In operation, it lowers kegs to ground, then tilts them automatically to roll into warehouse. Actions are reversed in truck loading. Unload-

Ask Standard how to cut costs with conveyors



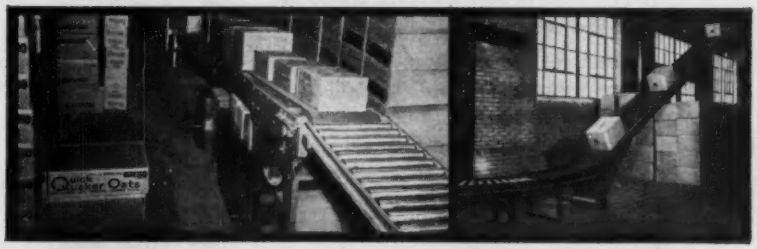
Order picking is expedited and simplified by this Standard system of roller and belt conveyors in large warehouse.

Roller and belt conveyors ease warehouse traffic jams

FAST flow of goods and simplified labor add up to more profitable warehouse operations.

Standard offers a wide variety of gravity and powered, permanent and portable conveyors — that can help you establish smooth, more profitable warehousing.

Spend a few moments with a Standard engineer. He'll show you how inexpensive Standard conveyors give you maximum flexibility at minimum cost. He'll show you, too, how Standard conveyors provide the many advantages of a custom-designed system at low cost. For the name of your nearby Standard engineer write STANDARD CONVEYOR COMPANY, General Offices: North St. Paul 9, Minn. Sales and Service in Principal Cities.



(LEFT) Belt-booster in a gravity roller conveyor "order picking" line. (RIGHT) Lift or lower floor-to-floor with an INCLINEBELT. Available in a wide range of heights and belt widths.

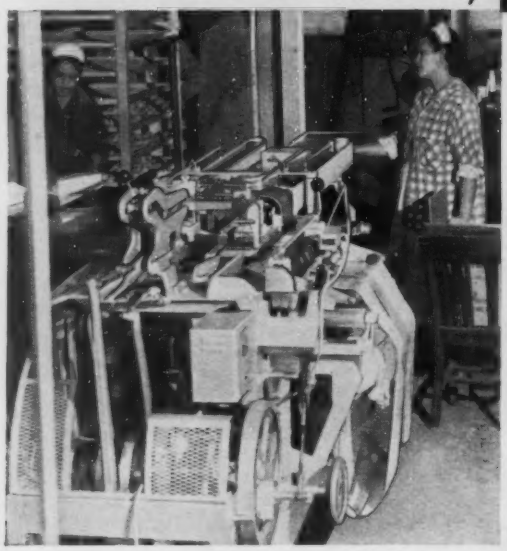
Write for Bulletin 309. Address Dept. D-9, or contact the Standard engineer listed in your classified phone book.

Standard 50 years of conveyor experience
GRAVITY & POWER CONVEYORS

For more data, circle 347 on Reader Service Card

"We are convinced no other wrapping machine could do as good a job as our new HAYSSEN,"

says E. N. DUMAS,
Daniel & Dumas
Seafoods, Inc.,
Port Lavaca, Texas.



Daniel & Dumas, like so many other Seafood and Frozen Food packers, has learned from experience that Hayssen automatic wrapping means better product protection, increased sales appeal and packaging economy.

Small wonder that Hayssen is the overwhelming choice of Frozen Food processors. The Hayssen neatly and tightly overwraps any size or shape package in paper, film or foil, directly from roll stock, ready for shipment.

Compare these features: Lowest initial cost and maintenance record. Simplest to operate. All parts readily accessible for easier cleaning. Rust-resistant to meet damp packing room conditions. Ruggedly built for years of trouble-free packaging production. Let our experienced packaging engineers help you with your packaging problems. Contact us TODAY!

HAYSSEN
MANUFACTURING COMPANY
Dept. FE-9 • Sheboygan, Wis.
first in Automatic Packaging Since 1910
Atlanta • Chicago • Dallas • Denver • Detroit • Houston • Jackson, Miss. • Kansas City • Los Angeles
Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto • Vancouver

ing takes about 10 sec., including an automatic delay to assure proper positioning of a barrel in the unit's cradle.

Device can stop and tilt at any level within its vertical 8-ft. span. This permits optimum use of truck space, since barrels may be stacked on two levels—bottom tier upright, top one horizontal. In unloading, kegs on top are rolled over the upright tier first. Procedure is reversed in loading.

Portable unit is electric-hydraulic powered and completely weatherproof, including controls. Platform size can be altered to accommodate standard barrel sizes.—*Colson Corp., Special Products Div., Somerville, Mass.*

Circle 25 on Reader Service Card

Polyester Filter Plates Offer Many Benefits

These molded polyester filter plates are said to answer the need for a low-cost, lightweight unit with improved chemical resistance and ease of cleaning. Currently, they are available in sizes to 36 in., and are being used in the processing of fruit juices and gelatin.

Plates' chemical resistance to a wide variety of corrosive chemicals is termed good-to-excellent. Since they weigh only about one-third as much as those made of standard corrosion-service materials, they are easy to handle and separate. Furthermore, as a result of compression molding, units are smooth and free of pores and pits that might trap sediment. Smooth joint surfaces provide a leak-type seal between plate and frame.—*T. Shriver & Co., Harrison, N. J.*

Circle 26 on Reader Service Card

Which juice do you want—
they all look alike to me

Just read the labels—and get
the one with extra Vitamin C

No doubt about it:
Merck Ascorbic Boosts Juice Sales

You can make promotable label claims, increase sales and profits by standardizing the Vitamin C content of your fruit and vegetable juices with Merck Ascorbic Acid. Noncitrus and popular citrus-noncitrus blends are especially suitable for fortification because of their naturally low Vitamin C levels.

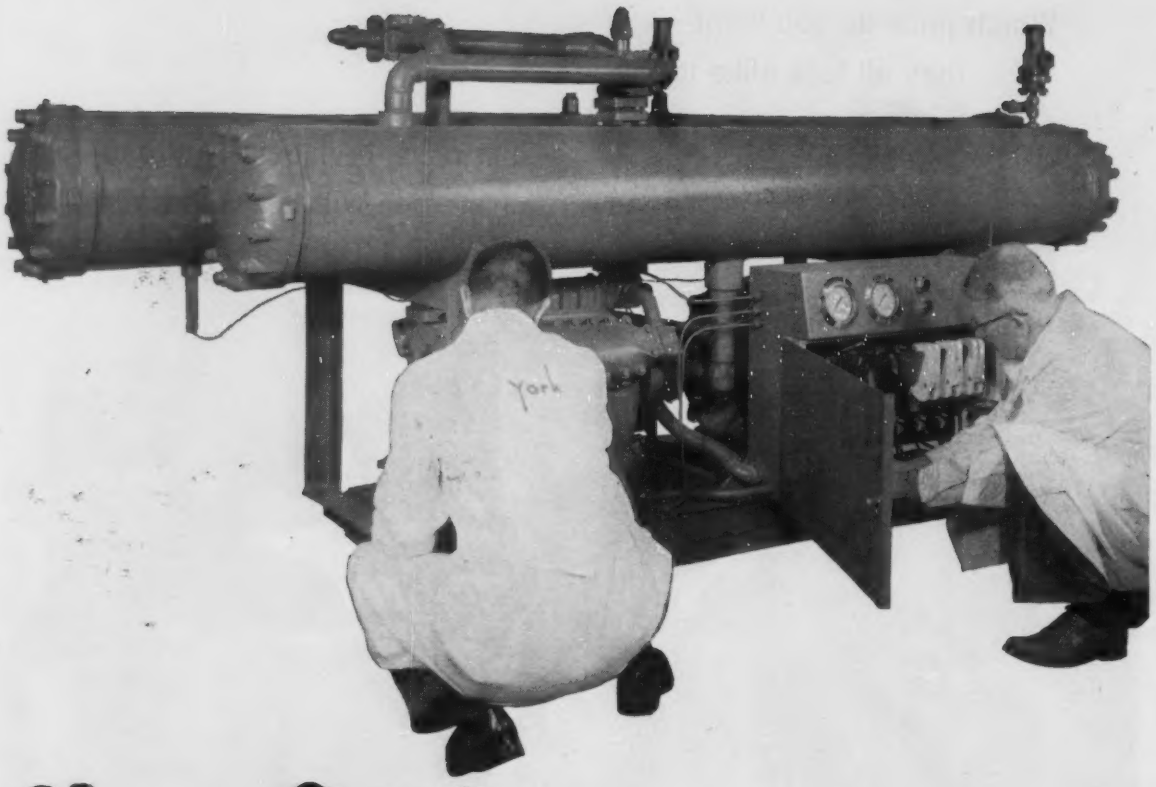
An improved ascorbic acid cost picture, the simplicity of fortification and its extra consumer appeal are all working to your advantage. And so is Merck.

As one of the world's largest ascorbic acid producers, Merck offers you prompt, dependable delivery plus whatever technical assistance you require. For the full story, call in your Merck representative or write directly to Rahway.

MERCK & CO., INC.
RAHWAY, NEW JERSEY

©Merck & Co., Inc.

For more data, circle 349 on Reader Service Card



More Cooling

IN 20% LESS FLOOR SPACE WITH YORK PACKAGED WATER CHILLER!

Compact, Factory-Assembled Unit Installs Anywhere In The Building—Without Costly Installation!

York Packaged Water Chillers offer consultants, architects and building managements the first practical answer to the critical space/cost problems in air conditioning new buildings. Each complete, factory-assembled package features integrated arrangement of all components—with built-in assurances of substantially reduced operating and maintenance costs!

Exclusive Flooded Coolers and positive refrigerant feed control mean top efficiency over the entire range of load conditions. Automatic capacity controls save power by continuously adjusting output to prevailing load conditions. Exclusive capillary oil return assures uninterrupted oil flow under light loads! All this, in a line that has the broadest range of capacities in the industry —from 18 to 250 tons! All this, in whisper-quiet, vibration-free, lightweight units that require no special foundations or space-consuming structural supports!

For *all* the facts and figures, see your local YORK sales representative...or write York Corporation, York, Pennsylvania, for Catalog EM-213!

YORK
CORPORATION
SUBSIDIARY OF BORG-WARNER CORPORATION
IN CANADA—SHIPLEY COMPANY OF CANADA, LIMITED

Millions Live Better With YORK...
the quality name in air conditioning

Manufacturers of Residential and Commercial Heating and Cooling Systems • Air Conditioning and Refrigeration Equipment for Industrial and Commercial Installations • Room Air Conditioners • Ice Makers • Refrigeration Units and Systems

Nozzle's 90-Deg. Elbow Saves Installation Space

Where spray must be directed at 90 deg. to inlet piping, this nozzle's 90-deg. elbow permits rapid installation without additional fittings.

Used for cooling and washing, unit (Full Jet, ¼-GA) provides a full-cone spray pattern for uniform distribution. Choice of spray angles include 65 and 120 deg.—*Spraying Systems Co., 3212 Randolph St., Bellwood, Ill.*

Circle 27 on Reader Service Card

INGREDIENTS

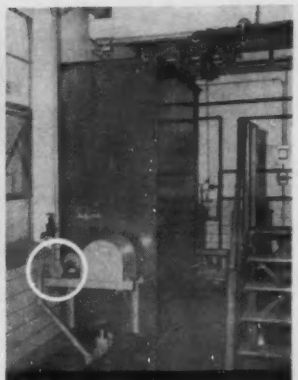
Offer New Vanilla Additives To Cut Flavoring Costs

With cost of vanilla beans rising, three new vanilla additives will interest bakers in particular.

First is a crystalline compound (Crystavan) formulated to lend an attractive new "vanilla note" to imitation powdered vanillas. Not a mixture of powdered flavors, it is prepared as a single homogenous crystal. In a cookie dough, ¼ oz. is used per 100 lb. batch. For ice-cream-cone batter, recommended level is 4 oz. per 100-lb. batch, while up to ½ oz. may be used in imitation vanilla powder compositions.

Second product (Vanatone) is a spray-dried flavor said to impart a "true vanilla bean" aroma to imitation powdered vanillas. It may be used in cookie doughs and imitation vanilla-powder compositions in proportions recommended for the above crystalline product. When added to chocolate in small amounts, it improves flavor appreciably and is par-

35 GPM special-fitted pump (behind man) pumps lard through filter process


18 Years Without Repair! 18 GPM Viking Pump recirculates lard. Has served 18 years without repairs.

"VIKING PUMPS help us turn lard into PROFIT"

says president of Teeters Packing Co., Columbus, Ohio

"Two years ago we didn't know what to do with our lard," says Carl V. Teeters. "Today it's different. We improved the quality of our lard and now we have a market for every bit we produce, at a premium. Three specially fitted Viking Pumps help us maintain high quality in our lard processing."

If lard processing is a problem for you, or if you're puzzled about moving some other liquid or semi-solid, Viking Pumps may help you as they have Teeters Packing Company. Try us and see! Our engineers will welcome the opportunity of working with you.

For information, write for bulletin 58

VIKING PUMP COMPANY

Cedar Falls, Iowa, U.S.A. In Canada, it's "ROTO-KING" pumps

See Our Catalog in Sweet's Plant Engineers File

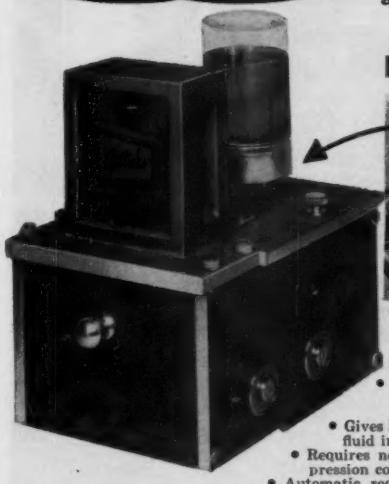
For more data, circle 351 on Reader Service Card

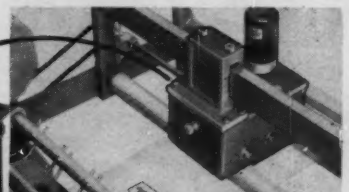
Occupies less than 1 cubic foot!

NEW forward-design ROLAPRINTER®

automatic wrapping machine

CODE-DATING and IMPRINTING ATTACHMENT





- Easily attached to any wrapping, bundling, bag-making machine. Compact — weighs less than 5 lbs.
- Functionally designed for trouble-free operation.
- Imprints code-dates, descriptive copy, trademarks on paper, cellophane, polyethylene, glassine, foil, etc.
- Gives high quality printing results with fast-drying fluid inks.
- Requires no adjusting at any time — has integral impression control.
- Automatic registration of imprints in any desired location.
- Visible ink supply with automatic feed.

Write today for full details about the new "Series 700 Rolaprinter" attachment

First and foremost in automatic production-line CODING, MARKING and IMPRINTING machines

Gottscho

GOTTSCHO, Dept. G

HILLSIDE 5, N. J.

In Canada: Richardson Agencies, Ltd. Toronto and Montreal

For more data, circle 352 on Reader Service Card

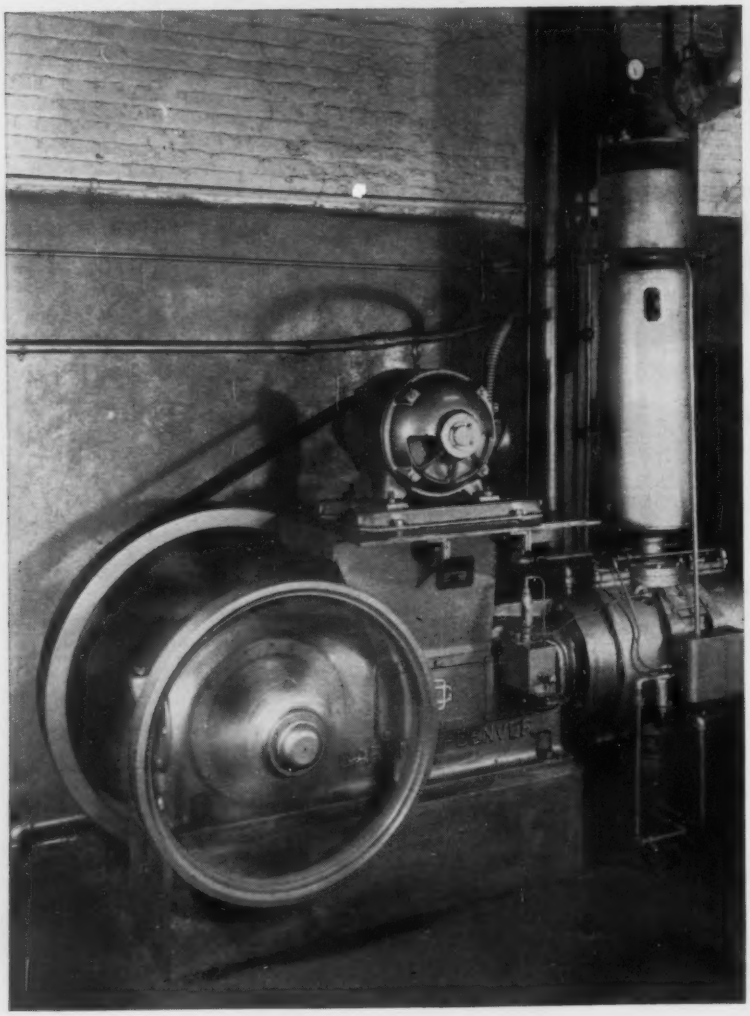
GARDNER DENVER

On the go day and night, Gardner-Denver RX compressors never tire, never lag. The sturdily engineered, dirt-free power end—that's one reason. Correct cylinder and valve design steps up compression efficiency. Fully circulating cooling water keeps operating temperature low. Get the full story on RX superiority for 'round-the-clock service. Write for Bulletin HAC-40 today. Gardner-Denver Company, Quincy, Illinois.

Stationary air compressors . . . tank-mounted compressor outfits . . . oil-free air compressors . . . whatever your compressed air needs, see your Gardner-Denver compressor specialist first. Gardner-Denver Company, Quincy, Illinois.

Reliable plant air

RX Horizontal Compressor



Equipment & Supplies

ticularly recommended in imitation vanilla powders for ice cream flavors.

Third additive (Vanarine), also spray-dried, reportedly enhances flavor of many foods. It can be compounded into imitation vanilla powdered flavorings, and has additional possible use in products where coumarin-like flavoring effects are desired.

Additives are available in 25- and 100-lb. drums.—*Fritzsche Bros., Inc., 76 9th Ave., New York City.*

Circle 28 on Reader Service Card

Domestic MSG Now Made By Fermentation Process

Startup of a new and technically advanced process marks the first American production of MSG through fermentation.

New product, over 99% pure (as the monohydrate), is offered in both coarse and fine crystal forms. Initial supply is in 100 lb. drums.—*Merck & Co., Inc., Rahway, N. J.*

Circle 29 on Reader Service Card

Ice-Cream Stabilizer Ups Product Quality

Here is a new stabilizer for ice cream and other frozen dairy products that is said to give lower-price products a consistency and texture rivaling premium grades.

Convenient to use, product curbs formation of unwanted ice crystals during long storage. Moreover, it has no adverse effect on flavor and requires neither aging nor special mixing.—*Commonwealth Engineering Co. of Ohio, 1771 Springfield, Dayton.*

Circle 30 on Reader Service Card

CHEMICALS

Economical Pan Cleanser Is Safe on Tin, Aluminum

Combining safety with cleansing efficiency, this pan cleanser is specially formulated to remove difficult soils in hand-type or soak-tank operations—without attacking tinned or aluminum surfaces, and without irritating worker's hands.

Called Composition No. 140, it is a light-blue material used at rate of ½-1 oz. per gal. of water for manual operation at 120-130F. In soak tanks (120-180F.) use of ½-4 oz. per gal. is

For more data, circle 353 on Reader Service Card

recommended. Product is also adaptable, at low concentrations and low spray pressure, to machine washing.

Cleanser contains no chromates and presents no disposal problem. It dissolves readily, rinses freely, and has no odor.—*Oakite Products, Inc., 26G Rector St., New York City.*

Circle 31 on Reader Service Card

Plastic Film Guards Stored Equipment

Applied by spraying, brushing, or dipping, this new plastic coating reportedly guards any non-porous object against corrosion, extreme weather conditions, and abrasion. Typical applications include storage of machinery and tools.

Protected equipment can be restored to use immediately, without cleaning or preparation, simply by peeling or stripping the plastic film. There is no oily residue or contamination.—*Harco Chemical Co., Cranford, N. J.*

Circle 32 on Reader Service Card

BRIEFS

Aerosol-Gassing Machine (rotary feed head) automatically charges containers with nitrogen or other compressed propellants at up to 120 per min. Control and timing devices do not use compressed air. Sanitary unit (220 Roto-Gas) employs 'no can, no charge' control and flat-top nylon conveyor pallets to prevent snagging of containers.—*Alpha Engineering Works, Inc., Mt. Prospect, Ill.* (33)

Portable Case Sealer eliminates need for bulky compression unit by gently inverting filled cases so that their weight compresses the glued flaps. Compact unit (3 ft. wide, 9 ft. long) handles cases up to 16 in. wide, 20 in. long, and 12 in. high.—*Standard Metal Products Co., 123 N. Racine Ave., Chicago.* (34)

Multi-Unit Cartoner offers efficient automatic packaging of jars, cans, bottles, and squeeze and pressure containers. Specifically designed for containers of different size and shape, machine (Jak-Et-Pak-50) forms up to 50 multi-packs per min. Changeover from double-line to single-line operation is termed rapid and simple. Unit is 10¼ ft. long and 4⅛ ft. wide.—*Continental Can Co., 100 E. 42nd St., New York City.* (35)

Humid cleaning room

proves this hoist can take it

Sterilizing metal meat trays is hot and humid business. That's why this meat packing plant uses the Keller 86-1V10, ½-ton air hoist. It dips rack after rack of trays into scalding water and is unaffected by splashing, steam and high humidity. The 86-1V10 provides a swift, steady lift . . . gentle starts and accurate stops to keep cleaning job moving along.

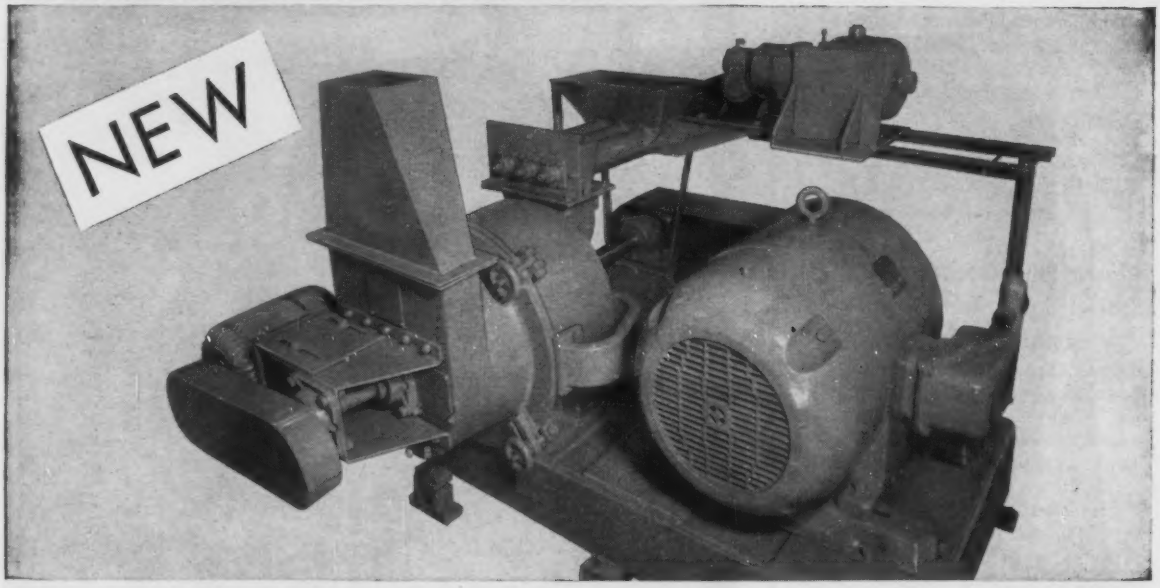
Keller air hoists in capacities from 150 lb. to 2 tons. Write for Bulletin 80.

ENGINEERING FORESIGHT—PROVED ON THE JOB
IN GENERAL INDUSTRY, CONSTRUCTION, PETROLEUM AND MINING

GARDNER DENVER

Gardner-Denver Company, Quincy, Illinois
In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 16, Ontario

For more data, circle 354 on Reader Service Card



FOR PRECISION GRINDING AND CLASSIFYING IN ONE OPERATION

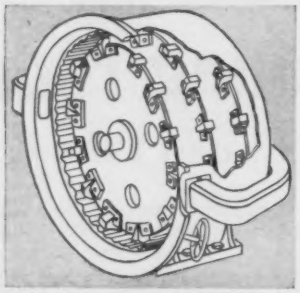
The PULVOCRON . . . An Air Attrition Impact Pulverizer and Classifier with Controlled Radial Inward Air Classification.

Now in one compact unit you can have a pulverizer and a classifier plus an automatic feeder, with separate controls over each. This assures positive particle size control and high capacity over a wide range of products. The Pulvocron will produce particle sizes from a range of 99% less than 5 microns or as coarse as 50 mesh, depending on the material and desired results.

The grinding chamber contains three adjustable plates with twelve staggered beaters on each. It also features added versatility through interchangeable liners of corrugated, perforated or smooth finish, plus variable rotor stator clearances.

The Classifier unit is on a hinged section with quick-open locks for simplicity of operating adjustment or cleaning.

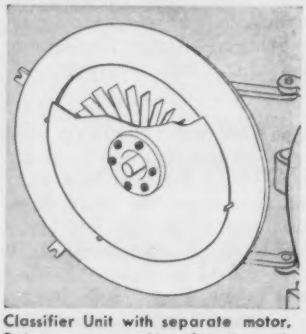
Material is both ground and classified through high centrifugal pressures set up by the beater and classifier plates. The Pulvocron is designed with oversize returns for automatic feed back of any oversize for further grinding.



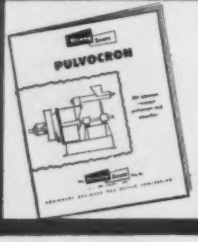
Grinding chamber with adjustable plates, removable liners and oversize returns.

CONSULT STRONG-SCOTT

Strong-Scott offers you a modern up-to-date laboratory containing specialized testing equipment. This is backed by an expert engineering staff to furnish layout and design service at no additional cost to you.



Classifier Unit with separate motor. Swings open as a hinged section with quick open locks.



WRITE FOR FREE COLOR BULLETIN

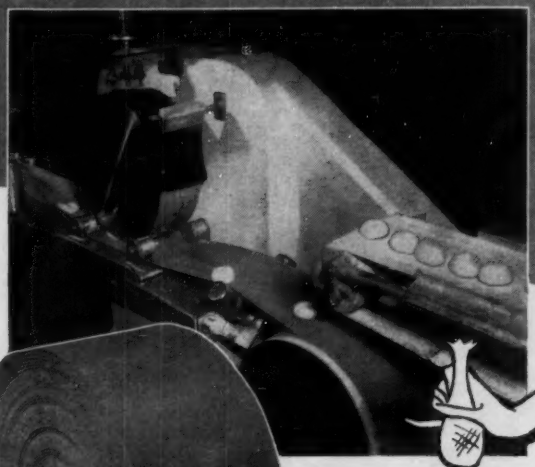
The **Strong Scott** Mfg. Co.

DEPT. FE-958

Equipment Designed for Better Processing

451 TAFT STREET N.E., MINNEAPOLIS 13, MINNESOTA

"The PURE FOOD BELT *that Always* SMELLS SWEET"



200 SIZES
35 WIDTHS
7 THICKNESSES

PlasTex

- **LASTS LONGER**
- **EASIEST TO CLEAN**

by any method... including live steam

Keeping clean, sanitary and sweet smelling in any food plant is an every day problem. Not the least of these is the conveyor belt the unpackaged food actually comes in contact with.

An *exclusive* with us and a long time favorite with food plants is our PLASTEX Food Belt. PLASTEX is our regular high quality cotton belt, coated with a tough plastic finish that won't crack or peel. It is impervious to oils, greases, acids, alkalies, moisture and temperatures from —20° to 200° F. Won't absorb or exude ANY odors and it's easy to clean by any method including *live steam* without harm to the belt. Available in gleaming white or subdued green and maroon colors, in five standard constructions:

(1) Regular Coat on one side
(2) Regular Coat on two sides
(3) Heavy Coat on carrying side and Regular Coat on pulley side
(4) Heavy Coat one side
(5) Heavy Coat both sides.

Ask your Mill Supply Man.

WRITE for 14 page booklet that fully illustrates and describes our belts, their sizes, prices and uses.

BUFFALO WEAVING & BELTING CO., INC.
206 CHANDLER STREET — BUFFALO 7, NEW YORK

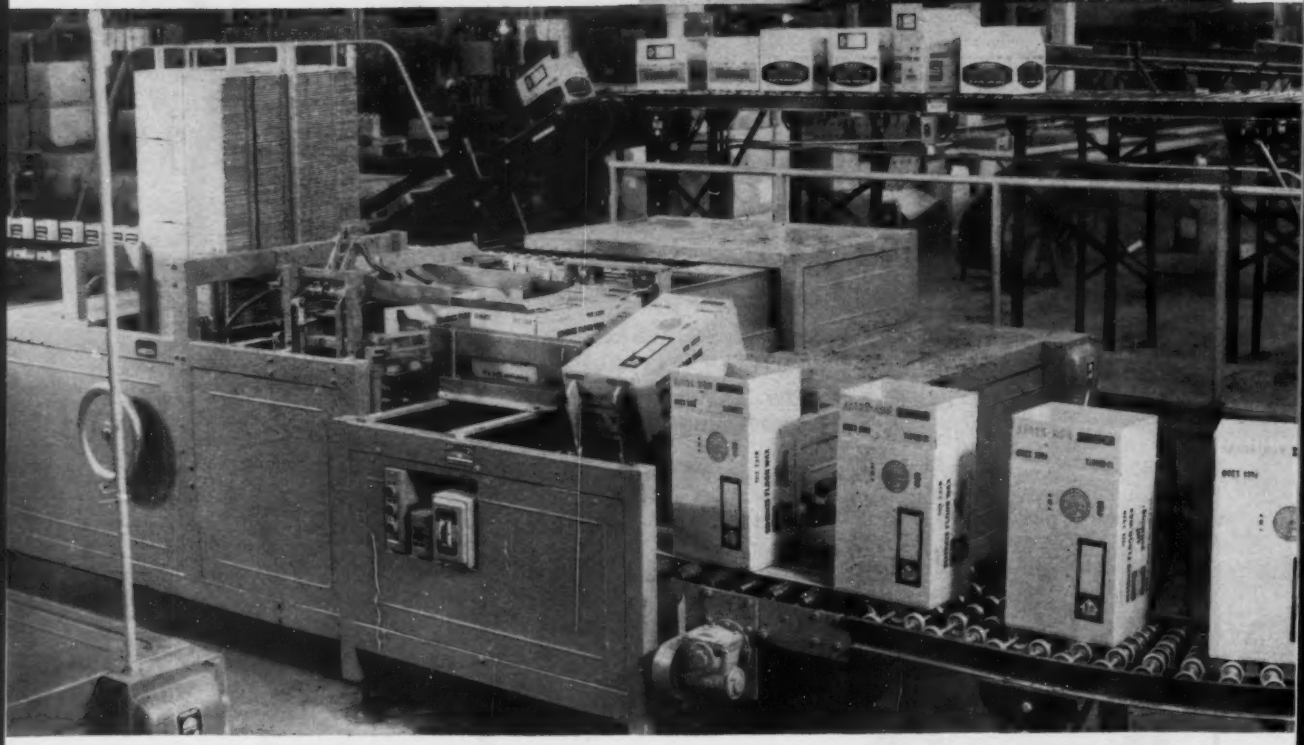
NEW YORK PHILADELPHIA CHICAGO DETROIT PASADENA

• *We also manufacture a complete line of WEBBINGS and PURE SHEET RUBBER*

Simoniz puts "protection" in a can

Packomatic®

puts the cans in a case



Packomatic equipment feeds, forms, positions, loads, seals and imprints corrugated shipping containers automatically. However you ship—in multi-ply paper bags, or in corrugated shipping containers; whatever you "package"—a can, a carton, a box or a bale—there's a Packomatic machine designed to handle your shipping container requirements. Packomatic machines, geared to your production line, will feed, form, position, load, seal and imprint corrugated containers automatically—or do any of these operations singly as a complement to your existing packaging facilities. Let one of our sales engineers suggest the start of a long-range packaging program for your plant. Investigate the Packomatic method of cutting costs and boosting production. Call, write or wire today.

Fully-automatic Packomatic Case Former-Loader, part of a fully-automated production line at the Simoniz plant, Kankakee, Illinois. Other Packomatics on the Simoniz line include Case Sealers and Case Imprinters.

Begin to automate your packaging line with this high-speed, fully-automatic Case Sealer. Aligns loaded cases, positions flaps, glues, seals and discharges — and no operator needed! Available in wide range of sizes. Semi-automatic, too. Call or write for additional information.

J. L. FERGUSON CO. Joliet 3, Illinois

PACKOMATICS include the Bale Sealer • Case Sealers • Opener-Loaders • Case Imprinters • Telescoping Volumetric Fillers • Packer-Gluers • Semi-automatic or fully-automatic.

JUST OFF THE PRESS

PLANT ENGINEERING

Electric Motors in factory stock available for immediate delivery. 42p.—The Louis Allis Co., Milwaukee. (66)

Vapor Condenser. Capacity curves, diagrams, and dimensions for vapor condensing in closed system. 4p.—Niagara Blower Co., N.Y.C. (67)

Pancake Motors. Details new line that reduce average motor length. 4p. — The Louis Allis Co., Milwaukee. (68)

Tubular Goods. Booklet explains testing and inspection methods used to insure quality. 24p.—Babcock & Wilcox Co., Beaver Falls, Pa. (69)

Air Line Filters, regulators and lubricators detailed. 20p. — Watts Regulator Co., Lawrence, Mass. (70)

Density Control Systems detailed. 4p.—The Ohmart Corp., Cincinnati. (71)

Packaged Drives featuring static power conversion. 12p. —Cutler-Hammer Inc., Milwaukee. (72)

Variable Speed Drive and pneumatic control systems detailed. 8p.—U. S. Electrical Motors, Inc., Los Angeles. (73)

Package Boiler. Describes 2-drum water walled, factory or field erected steam generators for any firing method. 20p.—Erie City Iron Works, Erie, Pa. (74)

Infra-Red Sections for the batch-type baking, drying, heating ovens. Details mounting dimensions, application data, prices. 5p.—Lighting Div., Safety Industries, Milford, Conn. (75)

Air Conditioning Units with capacities of 3,400-36,000 cfm. air. 8p.—American Air Filter Co., Louisville. (133)

Quick Release Valve for air control systems. 2p.—Westinghouse Air Brake Co., Wilmerding, Pa. (76)

Adjustable Speed Drive. Describes a.c. unit for 1-100 hp. motors that eliminates mechanical or electrical current conversion equipment. 10p.—Electric Products Co., Cleveland. (77)

Helical Gear Drives. Contains hp. ratings, dimensions, mounting information, and construction of new quadruple reduction units. 6p.—Link-Belt Co., Chicago. (78)

Worm Gear Drive, its advantages, design and manufacturing facts. 8p.—Cleveland Worm & Gear Co., Cleveland. (79)

Automatic Gas-Fired Boilers in sizes from 80 to 125 hp. 4p.—Eclipse Fuel Eng. Co., Rockford, Ill. (80)

Centrifugal Pumps with ceramic mechanical seals that eliminate stuffing box drip. Sizes 2½ and 3-in. suction, 2 and 2½-in. discharge. 4p. —Chicago Pump Co., Chicago. (81)

PROCESSING

Mixer-Blender employs special lifters to cut out and elevate portions of ingredients. Available with internal spray pipe for introducing liquids. 4p.—Munson Mill Mch'y Co., Utica, N. Y. (82)

Pressure Leaf Filters both horizontal and vertical. 8p. —T. Shriver & Co., Harrison, N. J. (83)

Recovering and Concentrating components of fluid mixtures by new unit operation. 4p.—Radiation Applications Inc., N.Y. City. (84)

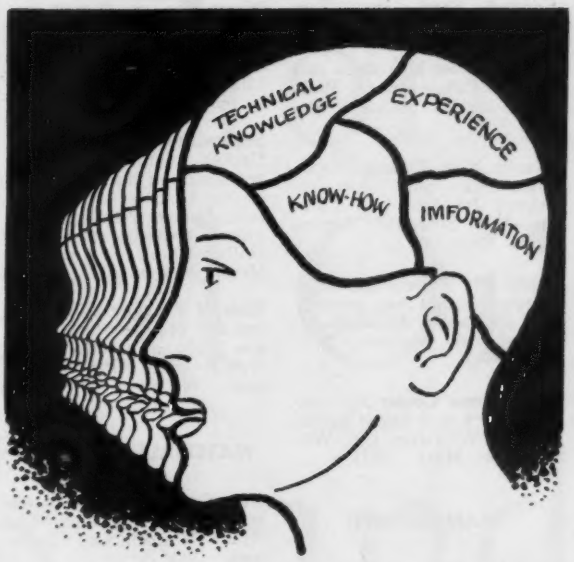
Choppers, both counter and floor models with capacities of 4-25,000 pph. 2p.—U. S. Slicing Machine Co., LaPorte, Ind. (134)

Filtering Medium comprising double layer of sheet metal with single pattern of perforations. 4p.—Multi-Metal Wire Cloth Co., N.Y.C. (85)

Utility Spray Dryer with evaporating capacity of 50 pph. 2p.—Nichols Engineering & Research Corp., N.Y.C. (86)

Blending Scale automatically proportions various grades of free-flowing materials. 2p.—Richardson Scale Co., Clifton, N. J. (87)

Steel Belt Conveyors for ovens, cooling tunnels, etc. Nomographs, tables, line drawings for calculating dimensions, hp., pulley dia., idler roller spacing. 8p.—



WHEN TWELVE HEADS ARE BETTER THAN ONE!

Are you considering a new product? Would you be interested in improving the market appeal of your present products? Are you interested in an impartial analysis of your present spice and seasoning ingredients?

The laboratory and production staffs of The Baltimore Spice Company are your most valuable source for technical knowledge and sound advice. Our products and services are well known by meat packers, canners, bakers and producers of food specialities. Our seasonings are a part of many successful branded items and as one of our customers expressed it "It's the flavor that wins customer favor".

Food manufacturers have found The Baltimore Spice Company competent and cooperative in solving many taste problems. You'll find it most advantageous to drop us a line about your seasoning requirements.

The BALTIMORE SPICE Company

12 S. Front Street • Baltimore 2, Md.

For more data, circle 358 on Reader Service Card

Sandvik Steel, Inc., Fair Lawn, N. J. (88)

Pellet Cooler also dries and conveys. 2p.—Sprout, Waldron & Co., Muncy, Pa. (89)

Plastic Milk Tubing—Some Questions and Answers About Its Use and Care. 3p.—U. S. Stoneware, Akron, Ohio. (90)

Deep Fat Fryer. Gas-fired, automatic unit has capacity of 200 pph. 4p.—Gifford-Wood Co., Hudson, N.Y. (91)

Multi-Zone Cooler for confectionery and baked goods. 4p.—J. W. Greer Co., Wilmington, Mass. (92)

MANAGEMENT

Stainless Steel. Folder gives technical data on cast stainless steel. Lists heat and corrosion resistant alloys. 4p.—Cooper Alloy Corp., Hillside, N. J. (93)

Arkansas Encyclopedia for executives interested in new plant locations. Four-volume unit contains detailed information on factors important to industry. — Arkansas Industrial Development Comm., State Capitol, Little Rock, Ark. (Request on company letterhead.)

Supervision Information. Packet contains facts on getting more through supervision. Discusses waste control, human relations, employee training, managerial skills.—Elliott Service Co., Mount Vernon, N.Y. (94)

Role of Packaging in retailing and preference of retailers. 10p.—Folding Paper Box Assn. of America, Chicago. (95)

MATERIALS HANDLING

Belt Conveying System detailed and illustrated.—The Alvey-Ferguson Co., Cincinnati. (96)

Electric Walkie Trucks operated from a control handle. 2p.—Lewis-Shepard Products, Inc., Watertown, Mass. (97)

Hand Trucks and other equipment used in manual handling of heavy or bulk materials. 20p. — Nutting Truck & Caster Co., Faribault, Minn. (98)

Spouting Parts for dry materials in 4- and 5-in. dia.—Miag Northamerica, Inc. Minneapolis. (99)

Dust Collector. Describes high efficiency cyclone. 8p. —Ducon Co., Inc., Mineola, N. Y. (100)

Pneumatic Conveying. Reprint gives 7 advantages, lists items pertinent to its application. 4p. — Sprout, Waldron & Co., Inc., Muncy, Pa. (101)

Lift Truck Attachments both mechanical and hydraulic designed for fork or carriage mounting. 24p.—Little Giant Products, Inc., Peoria, Ill. (102)

Grate Boards in varying sizes and capacities. 2p.—Magnesium Fabricators Inc., Linwood, Mich. (103)

PACKAGING

Portable Bagging Scale for power or gravity feeds. 2p.—Richardson Scale Co., Clifton, N. J. (104)

Vibratory Packers both magnetic and hydraulic. 4p. —Syntron Co., Homer City, Pa. (105)

Custom Printing of labels and tags. 4p.—Weber Marking Systems, Mt. Prospect, Ill. (106)

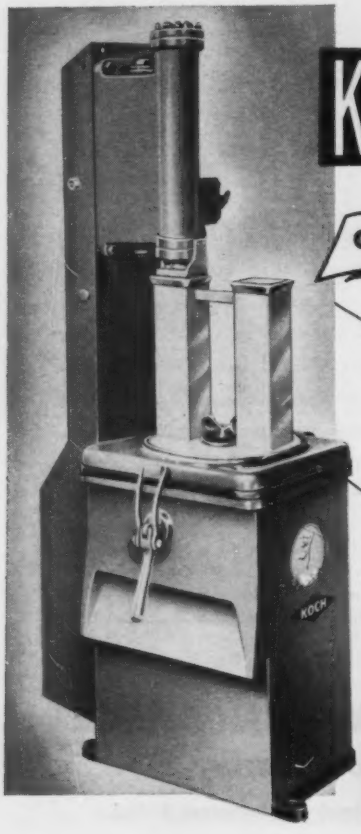
INSTRUMENTS

Electronic Counter that stops, starts, recycles machinery at predetermined count. Unit controls batching, machine cycling, sorting, materials handling, packaging and unit flow at

Free Literature—Fast Way

Any of these very-latest catalogs, bulletins, or folders will be sped to you gratis. Just note here the specific literature you want, then circle each key number (there's one given at the bottom of each item) on the handy Reader Service postcard — back of book. Then sign your name and address and mail.

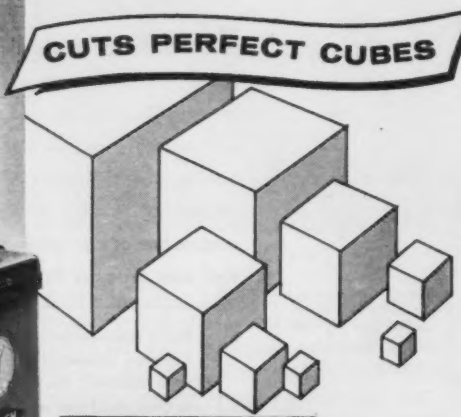
For your convenience, too, all items in this department are listed and keyed in the Reader Service Section.



KOCH

Precision
FOOD DICER

CUTS PERFECT CUBES



Save time, money and exertion with this versatile machine. It cuts meats, fruits and vegetables—cooked or raw. Will even handle semi-frozen material. Produces smooth blocks, without crushing or tearing. Dimensions of product can be controlled between 3/16" and 2". Produces cubes, strips, or slices.

When funnel is empty the cutting blades come to a standstill. They do not mash or heat the residue on them.

Made in Germany, with German precision and economy. Two sizes, with hourly capacity ranging from 300-lb. to 3000-lb.

Write or telephone, and find out how much you can do with this machine.

KOCH EQUIPMENT CO.

2520 Holmes St. / Kansas City 8, Mo. / Victor 2-3788

NEW! From Standard Oil ESKAR ★ and Super ESKAR Dairy Wax ★★

Here are two great new dairy waxes to help you make better milk and fruit juice cartons. Both are on the Pure-Pak list of approved dairy waxes. Both waxes will help you obtain a handsome, clear, smooth carton finish. If you are trying the new "hold out" cartons, you will want to try Super ESKAR.

For information about these new waxes, call your nearby Standard Oil office in any of the 15 Midwest or Rocky Mountain states. Or write **Standard Oil Company, 910 S. Michigan Ave., Chicago 80, Ill.**

Quick facts about
ESKAR and Super ESKAR Dairy Wax

- Reduce wax flaking
- Give better leveling
- Give greater carton rigidity
- Reduce scuff-off on machine
- Give sharper definition of printing
- Reduce mottling and serpentine effects
- Are free of odor and taste
- Have high strength and durability
- Have good stability

You expect more from STANDARD and get it!

For more data, circle 360 on Reader Service Card

No Spoilage
Bacteria
IN THIS SHIPMENT
it's filtered with
CELITE
Whether you are refining sugar or buying it for use in your process operations, you can be sure that liquid sugar is free of thermophilic bacteria when it is filtered with Celite*. Efficient, economical Celite filtration delivers brilliantly clear liquid sugar that will remain positively pure as long as it is protected from recontamination by spores in the surrounding air.
Celite is also ideal for filtering other food products such as syrups, jellies, beer and wine. Composed of microscopic particles of pure inert diatomaceous silica, Celite provides fast, economical clarification . . . never affects the most delicate flavors.
And with Celite you get important advantages over other diatomites. Its lower wet density means greater filter surface coverage. Its high uniformity means more consistent results. For more information on how Celite filtration helps the food industry make better products at lower cost, call your near-by Celite engineer or write Johns-Manville, Box 14, New York 16, N.Y. In Canada, Port Credit, Ontario.
*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products.
Johns-Manville CELITE
diatomite filter aids
JOHNS-MANVILLE
JM
PRODUCTS
LIQUID SUGAR

speeds above 100 per sec. 14p.—Standard Instrument Corp., N.Y.C. (107)

Automatic Cutout protects equipment against excess temperature by sounding alarm and/or shutting down machine upon reaching safe maximum. 8p. — Illinois Testing Laboratory, Inc., Chicago. (108)

Temperature Controller with each feature illustrated by photographs. 2p.—Fenwal Incorporated, Ashland, Mass. (109)

Time Keeper. Introduces unit for accurate recording of total time spent on a job. 2p.—Calculagraph Co., Harrison, N. J. (110)

Motion Indicator converts motion into a signal that may be used to energize alarm systems or operate control switches. 4 p.—Bin-Dicator Co., Detroit. (111)

Automatic Valves both magnetic and motorized. air. water, gas, steam, oil and refrigerants. 24p. — Mercoid Corp., Chicago. (112)

Liquid Controls both electronic and electromagnetic. 16p.—Electronics Corp. of Amer., Cambridge, Mass. (113)

Consistency Regulator for pipelines comprises shear float and pneumatic force transmitter. 2p.—Fischer & Porter Co., Hatboro, Pa. (114)

SANITATION & MAINTENANCE

Power Sweeper for low-cost dust-free floor cleaning. 2p.—G. H. Tennant Co., Minneapolis. (115)

Insecticide Sprayer. Portable unit is adjustable for fog, spray or mist. 4p.—Curtis Automatic Devices, Inc., Westfield, Ind. (116)

Splash Goggles for protection against liquids and sprays. 2p.—American Optical Co., Southbridge, Mass. (117)

Silicone Insulation. Guide to winding electric motors with silicone components. 6p. —Dow Corning Corp., Midland, Mich. (118)

Protective Coating and application systems for obtaining maximum resistance to acids, alkalis and solvents.—Bisonite Co., Inc., Buffalo. (119)

Tank Lining that is glossy, hard, odor- and taste-free, for storage, conveying and transporting vessels. 4p.—Wisconsin Protective Coating Co., Creen Bay. (108)

Re-Roofing System. Details typical roof troubles that can be corrected by company's installations. 4p. — Monroe Co., Inc., Cleveland. (121)

Regenerating Exchangers. Reprint gives 10 methods of ion exchange regeneration. 4p.—Graver Water Conditioning Co., N.Y.C. (122)

Steel Shelving cabinets, and lockers. 3p.—Penco Metal Products Div., Alan Wood Steel Co., Oaks, Pa. (123)

Paint Stripping. Describes and illustrates compounds and methods. 2p.—Oakite Products, Inc., N.Y.C. (124)

Steel Flooring and its applications. Contains engineering data on load stress, sizes, and types. 8p.—Joseph T. Ryerson & Son Inc., Chicago. (125)

QUALITY CONTROL

Laboratory Facilities available for solving fluid mixing problems. 6p.—Mixing Equipment Co., Rochester, N.Y. (126)

Shear Press for measuring textural-rheological properties of foods. 2p.—L. E. E. Inc., Washington, D.C. (127)

Ultra Centrifugation, its function and applications in measuring purity of preparations. 6p.—Spinco Div., Beckman Instruments, Inc., Palo Alto, Calif. (128)

Viscometer for determining physical properties of starches. 2p.—Gaertner Scientific Corp., Chicago. (129)

Paper Thermometers and temperature indicators that change from white to black at predetermined temperatures between 100 and 470F. 6p.—The Paper Thermometer Co., Natick, Mass. (130)

Flowrator Kit for checking field or laboratory flows from 20.3 cc.-6.6 gpm. liquid, 910 cc.-27 cfm. gas. 2p.—Fischer & Porter Co., Hatboro, Pa. (131)

Centrifuges for laboratories. automatic, refrigerated, and continuous flow. 10 p.—Ivan Sorvall, Inc., Norwalk, Conn. (132)

BE SURE IT'S PURE!

In a recent release of U.S. Government standards, Irish Moss Extracts and Sodium Alginates have received approval as ingredients in certain dairy products.

You can turn this information to your own advantage at once — whether you are in the dairy field or not.

For, in many a problem dealing with viscosity, suspension, stabilization or gelation, food processors who have **tested** these products of the Algin Corporation of America have found an ideal solution.

These extracts are **truly** odorless and tasteless. They add virtually no calories to the finished food products. They are impressively economical. But above all — they are uncompromisingly **pure.** In fact, Algin Corporation's exclusive method of extraction guarantees the **highest** purity for these Marine Plant Extracts.

Complete **factual** information is yours for the asking: Actual Case Histories of how these Marine Plant Extracts improve products and sales; solid evidence that these extracts may well be the basis of entirely **new** products for you. Simply address your request to: —

Dept. P5

ALGIN CORPORATION OF AMERICA

NEW YORK 4: 24 State Street • Whitehall 4-1193

SALES OFFICES: **CHICAGO 5:** 600 South Michigan Ave. • WA 2-3829
LOS ANGELES 25: 2024 Westgate Ave. • BR 2-4346

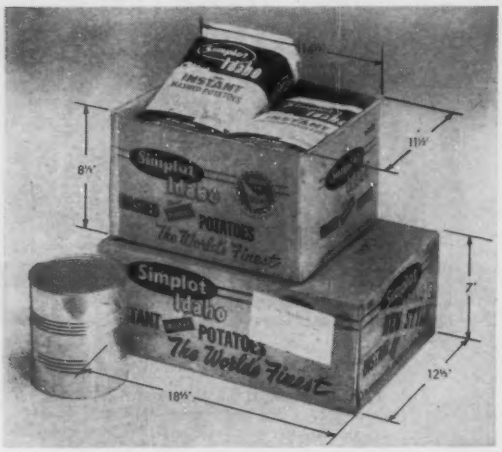
Canadian Sales Representative — Charles Albert Smith Ltd.
356 Eastern Ave., Toronto • 8307 Royden Rd., Montreal

Packaging is more than "Skin Deep"!

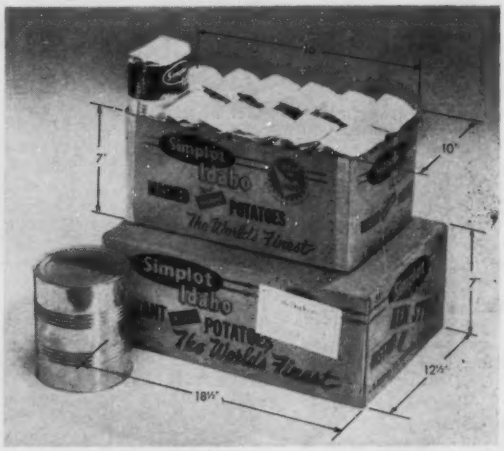
PACKAGING PROBLEM

The Simplot Company was packaging their Instant Mashed Potato granules in #10 tin cans. They were concerned with the package because some small restaurants were unable to use a complete can at one time (each can contained enough product for 150 servings). The cans were expensive, and their weight made shipping charges high.

Simplot working with Western-Waxide's Research and Development Laboratory went in search of a package that would provide the needed protection, convenience, and economy.



10# bags save 201 cu. in., carry 40 lbs. per case!



3# bags save 498 cu. in. per 36 lbs. product!

SOLUTION:

Western-Waxide's Research and Development Laboratory had previously developed a bag for a dried milk producer. Called the Crown Dri-Pak* bag, its construction is bleached kraft paper laminated to .00035" foil with polyethylene coating over the foil. Bag closure is achieved by heat sealing with standard equipment. It is strong, an excellent water-vapor barrier, very economical, and can be produced in a variety of sizes. It is also easy to reclose for temporary protection of unused portions.

Crown Dri-Pak bags filled with Simplot instant potato granules were placed in the "tropics room" of the San Leandro Laboratory, R. H. 90% and temperature 100°. Ninety days later, the sample showed *only ½% moisture gain*—and no trace of discoloration or flavor damage. These tests clearly indicated that the Crown Dri-Pak bag was the answer to this packaging problem.

Two bag sizes were adopted—3# and 10#—to provide maximum convenience to customers. Most small restaurants use the contents of the 3# bag (75 servings) at one time. If there are leftovers, the dead-folding properties of the foil allow the bag to be folded over snugly for further protection. Larger institutions find the 10# bag suits their daily needs.

The new package is economical: 3# bags, packed twelve to a shipping case, result in combined packaging and shipping savings of $17.80 per ton of product. The larger 10# bags, packed four to a case, reflect a savings of $28.70 per ton of product. In addition, the bag is easy to open, handle, and reclose; less storage space is required (see photos above) and empty bags are more easily disposed of than tin cans. And as a "bonus extra," Simplot now benefits from strong brand identification from each unit—for each bag is printed in red and blue on a sparkling white background.

This case history is another successful packaging application of an extremely hygroscopic product in Crown Dri-Pak Bags.

The personnel and services of Western-Waxide's Packaging Research and Development Laboratory can turn packaging problems into profits for you! Write or phone your nearest Western-Waxide office today.

*Dri-Pak is a trade mark of Crown Zellerbach Corporation.

CROWN ZELLERBACH WESTERN-WAXIDE DIVISION

Headquarters Office: 2101 Williams St., San Leandro, Calif. • Plants and Sales Service Offices in Principal Cities of the United States

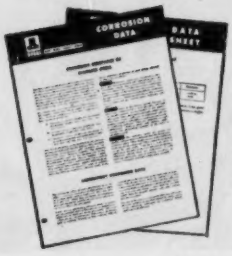
Manufacturers and converters of plain and printed waxed paper • foil • foil laminates • polyethylene coated paper and polyfilm laminates • films • bags • pouches and other specialized flexible packaging materials

New Sendzimir Mill

produces stainless steel sheets to extremely close tolerances in widths up to 48 inches

This new Sendzimir mill, complete with annealing, pickling, skin pass and other equipment, was designed and engineered for the exclusive production of the highest quality stainless sheet and strip.

It is located at the Louisville, O., plant of J & L's Stainless and Strip Division. For complete information on the Division's flat rolled stainless products, write our Detroit sales office today.



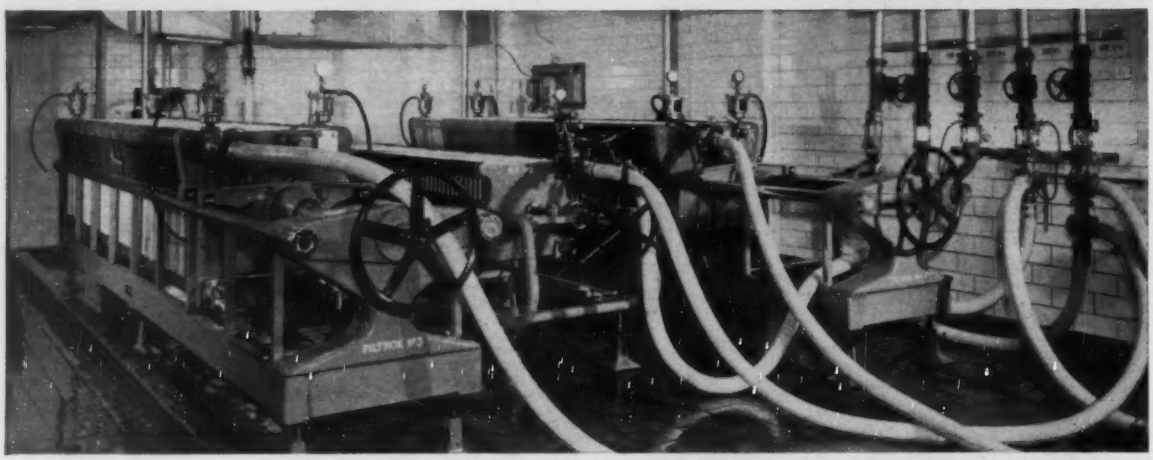
Write for these Technical Data:
1. Laboratory Corrosion Data.
2. Data Sheets (please specify the grades in which you are interested).

Improve your Products with . . .
J&L STEEL
STAINLESS
BAR • WIRE • SHEET • STRIP

Jones & Laughlin Steel Corporation • STAINLESS and STRIP DIVISION • Box 4606, Detroit 34

For more data, circle 364 on Reader Service Card

at MILLER Brewing Company . . .



These third-stage filters help Miller Brewing Company obtain the famous golden brew of Miller High Life Beer. Foxboro Magnetic Flow Meters are used to control flow of beer to filters.

Magnetic FLOW METERS CLEANED IN PLACE

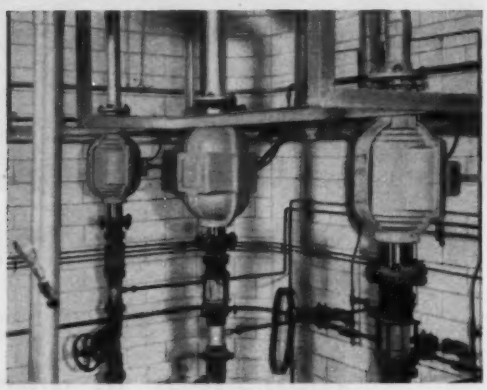
without disassembly

Foxboro Magnetic Flow Meters installed at Miller Brewing Company are cleaned just like a length of pipe. Operators send chemical cleaners and ball brushes right through the lines — meters and all — *without* removal or disassembly.

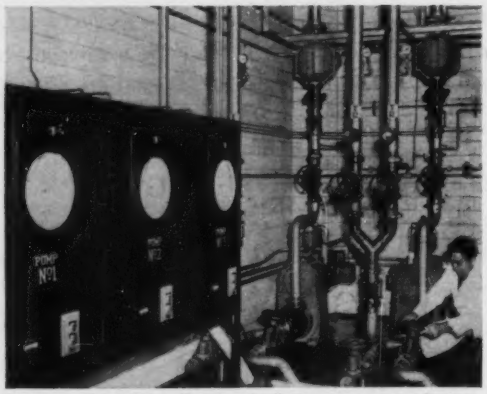
This clean-in-place procedure is made possible because the Magnetic Flow Meter has no more flow restriction than an equivalent length of pipe. Measurement is made by two flush-mounted electrodes . . . so, there are no bacteria-catching orifice plates, pressure taps, or pipe line crevices. Any cleaning device can be sent right through the meter as installed. No need to take it apart or remove it from the line.

But Foxboro Magnetic Flow Meters are more than just a boon to sanitary flow measurement. They provide the brewers of Miller High Life beer with automatic, precise control of flow to filters. Presetting of flow rates gives more efficient filtration as well as more effective coordination between brewing operations.

With liquids as light as beer, or with viscous liquids and slurries, the Foxboro Magnetic Flow Meter provides accurate, trouble-free flow measurement. Get the complete story in Bulletin 20-14B. **The Foxboro Company, 309 Neponset Ave., Foxboro, Mass.**



Miller cleans these Magnetic Flow Meters in place—without taking them apart or removing them from the line. Downtime for cleaning is reduced considerably. The meters have no flow restrictions — are installed just like a length of pipe.



Foxboro Dynalog* Electronic Instruments precisely control and maintain accurate records of beer flow to filters.

*Reg. U.S. Pat. Off.

FOXBORO
REG. U.S. PAT. OFF.
FIRST IN FLOW METERING

USEFUL NEW BOOKS

Profit Through Organization

MANAGEMENT AND ORGANIZATION by Louis A. Allen. Published by McGraw-Hill Book Co., 330 W. 42nd St., New York City 36. 1958. 353 pages. Price: $7.

How to increase profit through organization changes is the topic of this book which draws on a 3 year analysis of 168 leading companies for reference and illustration.

Giving actual company names and data, the book shows new techniques for meeting key problems such as decentralization; delegation; design of organization structure; staff and line relationships; reorganization, and others.

Automatic Vender Listing

1958 DIRECTORY OF AUTOMATIC MERCHANDISING. Published by National Automatic Merchandising Assn., 7 S. Dearborn St., Chicago 3. 1958. 178 pages. Price: $4.50.

This fifth edition of a directory to automatic venders reflects the continuing trend in "dispensed" foods. Foods, certainly, can claim a large part of this business which rings up over $2 billion annually.

Listings are keyed by machine manufacturers and by vended product suppliers.

Booklets and Reports

AGRICULTURAL GEOGRAPHY OF LATIN AMERICA published by USDA, Washington 25, D. C. Price: 65¢. Illustrated report shows closely related trade interests of Latin America and the United States.

EVALUATION OF SHIPPING CONTAINERS FOR WESTERN LETTUCE (Marketing Research Report No. 248), published by USDA, Washington 25, D. C. Price: 25¢. Report on study to develop cheaper and improved shipping containers and methods of shipping agricultural products.

COST CONTROL THROUGH ELECTRONIC DATA PROCESSING. Published by Society for the Advancement of Management, 74 Fifth Ave., New York City 11. 1958. Price: $1.50. Discussion of the practical ground rules of question asking and corrective managerial action in the use of EDP as a cost-control instrument.

kill foam with a Dow Corning SILICONE DEFOAMER

Is foam giving you the old "one-two"? One—slowing up your processing . . . two—running up your costs? Fight back hard. Knock out foam fast, with Dow Corning silicone defoamers . . . most efficient foam killers known!

1 oz kills foam in:

208,333 lb lobster tank brine

41,666 lb soft drink syrup

20,800 lb deep fry fats and oils

FREE SAMPLE! Make your own test. Return coupon below for generous *trial sample* of a Dow Corning SILICONE DEFOAMER. No obligation, of course.

first in silicones

Dow Corning CORPORATION
MIDLAND MICHIGAN

559

NAME

TITLE

COMPANY

CITY ZONE STATE

My foamer is

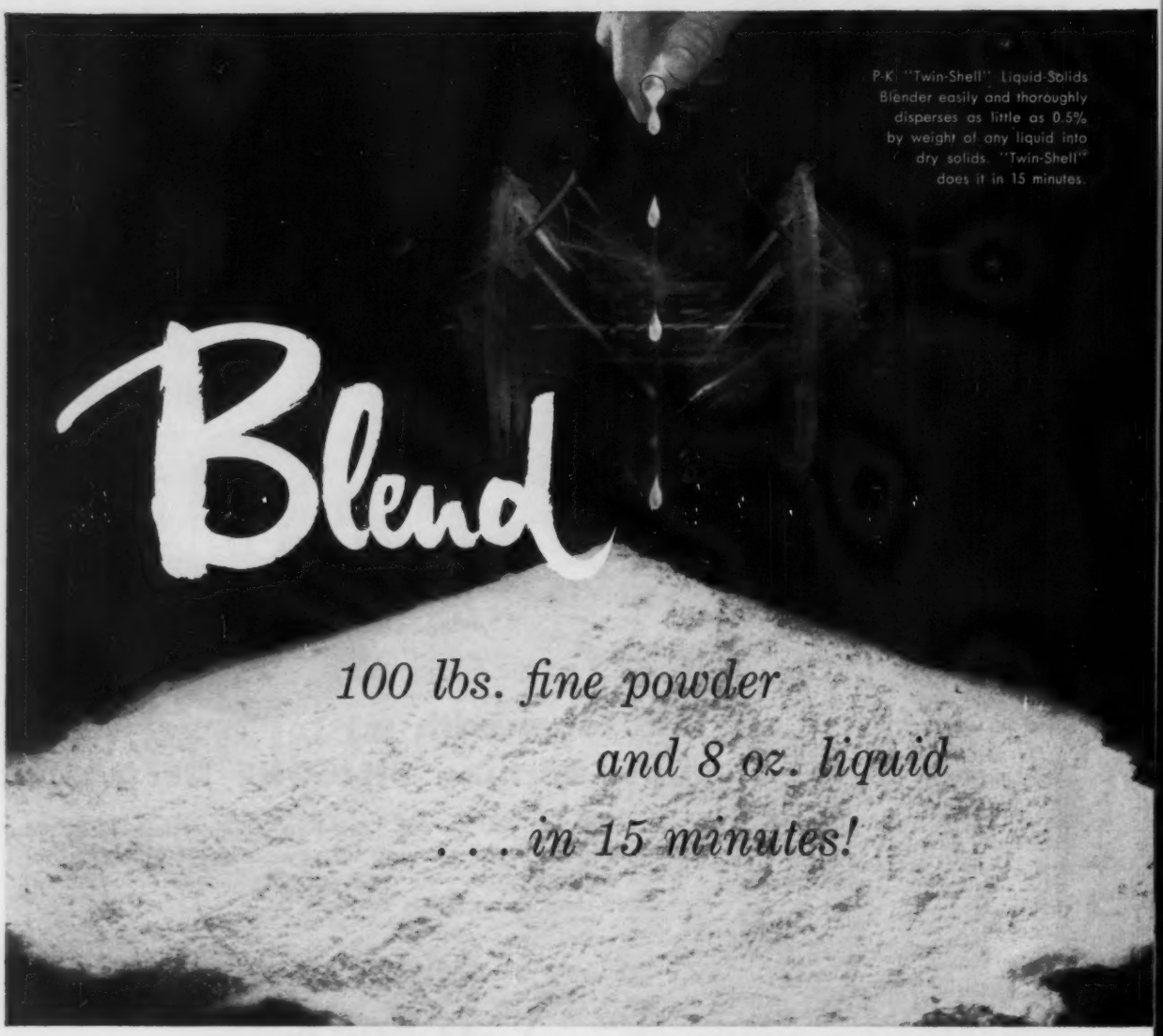
Oil system

Aqueous system

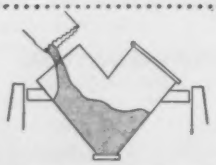
Food products

Other

For more data, circle 366 on Reader Service Card


P-K "Twin-Shell" Liquid-Solids Blender easily and thoroughly disperses as little as 0.5% by weight of any liquid into dry solids. "Twin-Shell" does it in 15 minutes.
Blend
100 lbs. fine powder
and 8 oz. liquid
. . . in 15 minutes!

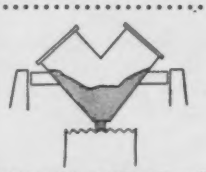
With the P-K "Twin-Shell" Blender the process industries can eliminate such post-blending operations as pulverizing and screening, with their time-consuming materials handling. Blending time itself is cut from hours to minutes. And some hitherto impossible blends are achieved easily with the P-K "Twin-Shell." Here's how "Twin-Shell's" unique design speeds processing:



CHARGE DRY SOLIDS through top of either shell. Optimum charge level for most materials is about 65% of total shell volume.

TUMBLE AND AERATE. As shell revolves, rapidly spinning wire cage intensifier breaks up agglomerates, literally creates dust storm in material.

ADD LIQUID. Centrifugal force sprays atomized liquid from periphery of control discs on Liquid-Feed Bar into finely dispersed solids.



DISCHARGE PRODUCT easily through apex of shells. Accessibility of interior and easy removal of Liquid-Feed Bar speed cleaning.

See this new concept in blending! Accept this invitation...

Get new ideas for your blending process at P-K's Pre-Test Lab

P-K Process Executive welcomes visitor to Pre-Test Lab at East Stroudsburg, Pa. Lab is equipped and staffed to make, or help you make, conclusive tests of blenders with your own materials.

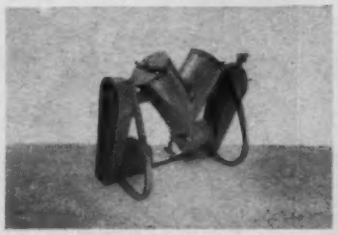
Phone Stroudsburg 820 and arrange to make comparison tests – using your own formulations – at P-K's Pre-Test Lab.

P-K makes practically all kinds of blenders – conventional types as well as the radically different "Twin-Shell." Thus, P-K can give you impartial help in selecting the correct blending process for your needs.

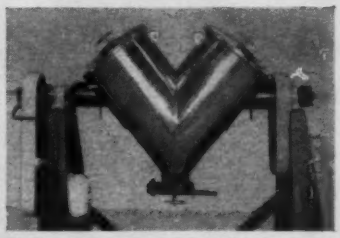
But, blending is full of variables; don't decide on *any* blending equipment or process until you pre-test it with your own formulations. The Pre-Test Lab offers you an opportunity to do this with the aid of skilled blending technicans and proper equipment . . . and without obligation, of course.

You simply bring or send your materials to the Lab. Here the correct blending procedure and equipment for *your* job are determined by extensive tests. You receive a comprehensive report that can become the basis for an informed selection.

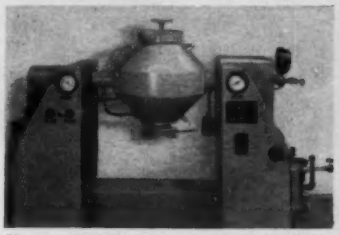
TEST YOUR MIX WITH EQUIPMENT LIKE THIS



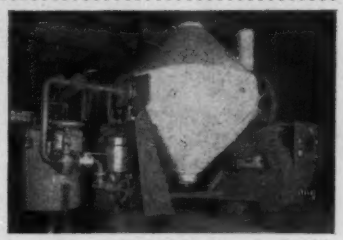
"Twin-Shell" Liquid-Solids laboratory models are made in transparent Lucite or stainless steel, in 8 and 16 quart sizes.



Production models of the "Twin-Shell" blender range up to 50 cu. ft. capacity. (Intensifier and Liquid-Feed Bar optional.)



Vacuum Tumble Dryers by Patterson-Kelley are available in sizes down to the standard 1 cu. ft. capacity lab model.



Production models of the Vacuum Tumble Driers have capacities up to 150 cu. ft. Come factory aligned, piped, instrumented.

You're invited

to pre-test your own formulations at the Pre-Test Lab. Write – or better yet, phone – Russell Dotter at P-K to set a date. (The number: Stroudsburg 820.) He will tell you how much of your materials to bring and will give you other details.

If you can't spare the time, send your materials anyway. But try to see the tests for yourself. If your process includes precision blending, your visit will be worth your while. The Patterson-Kelley Co., Inc., 2009 Hanson St., East Stroudsburg, Pa. (in the heart of Pennsylvania's scenic Pocono Mountains).

Patterson Kelley
Chemical and Process Division

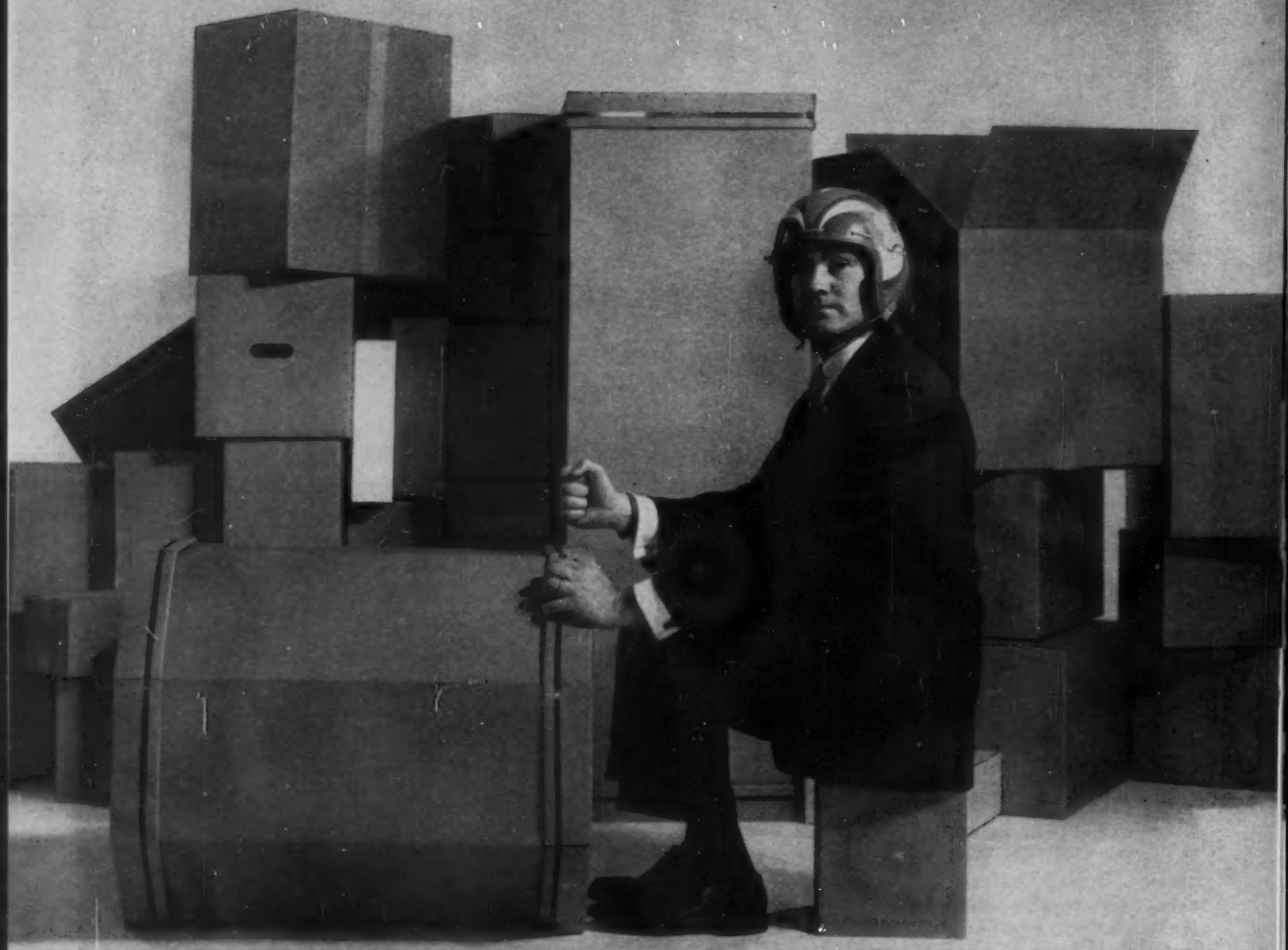
For more data, circle 367 on Reader Service Card

GAYLORD PILOTS YOU
TO JET-AGE PACKAGING

Looking for ways to up-date your packaging procedures? Your Gaylord pilot can help you speed production, increase product protection and improve promotion. At down-to-earth packaging costs.

Precision corrugated boxes by the millions or engineered packaging, Gaylord is skilled in both. Case histories? Roger and over . . . to your G-Man.*

Your Gaylord Man—of course



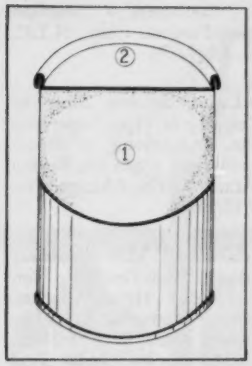
GAYLORD
CONTAINER CORPORATION

Gaylord Boxes

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**

RECENT INVENTIONS



Cake Baked in Can

Batter (1), formulated to yield cake with 34% moisture (pH 4.3-5.5), is filled into can, which is then partially sealed by clinching cover (2) to it. After baking (330-340F.), container is immediately sealed and quickly cooled to create 26½-in. vacuum.—D. A. Battiste, Philadelphia. No. 2,845,256. July 29, 1958.

PRODUCTS

Chocolate-Milk Drink Made by Hydrolyzing Irish Moss, Mixing Extract With Cocoa Powder and Sugar, Blending With Cold Milk—National Dairy Products Corp. No. 2,830,903.

Meat-Color Stabilizer Consisting of Salts and Esters of Propionic and Ascorbic Acids—Swift & Co., Chicago. No. 2,830,907.

Food Color Made by Heating Bixen Ester and Nor-Bixen Di-Ester in Liquid Higher-Fatty-Acid Ester—Chas. Pfizer & Co., Brooklyn, N.Y. No. 2,830,908.

Cereal Grain Having Vitamin B_2 Fortifier, Edible Water-Repellent Coating of Titanium Dioxide — Hoffmann-LaRoche, Inc., Nutley, N.Y. No. 2,831,770.

PROCESSING

Freezing Meat Patties by Grinding, Shaping, Interleaving, Surface-Freezing, Packaging in Heat-Shrinkable Film, Quick-Freezing—L. B. Darling Co., Worcester, Mass. No. 2,825,652.

Recovering Fish From Fillet Skeletons by Steaming, Combing Product Away From Backbone—T. S. Gorton, Jr., Cambridge, Mass. No. 2,827,383.

Destringing Sausage Casings After Stuffing—Swift & Co., Chicago. No. 2,827,660.

Recovering Fat from Cellular Material by High-Speed Impacting in Liquid Stream—C. C. D. Processes, Ltd., N.Y.C. No. 2,828,018.

Inhibiting Microorganism Growth on Strawberries by Blanketing With Gas—Brogdex Co., Orange County, Fla. No. 2,828,210.

Freezing Packaged Leafy Vegetables by Filling Into Tray, Adding Water, Spreading Product Uniformly, Compressing, Freezing, Sub-Dividing the Block—G. E. Sanders, Montvale, N.J. No. 2,828,211.

Treating Hydrolyzed Gluten to Remove Humin, Inorganic Salts, Impurities—Ogilvie Flour Mills Co., Ltd., Montreal, Canada. No. 2,828,336.

Separating Green from Yellow Dry Peas by Density Fractionation—USA. No. 2,828,860.

Recovering Rice Oil from Bran Coating by Solvent Extraction—A. K. Ozai-Durrani, Stuttgart, Ark. No. 2,829,055.

Producing MSG from Calcium-Containing Sugar-Beet Waste Liquor—International Minerals & Chemical Corp. No. 2,829,161.

Converting Glutamic Acids to Dipotassium Glutamate—International Minerals & Chemical Corp. No. 2,829,162.

EQUIPMENT

Handling System for Transferring Cases From Portable Platform to Discharge Conveyor—P. Ballantine & Sons, Newark, N. J. No. 2,822,933.

Fermenter Including Angular Baffle Forming Beer and Foam Chambers, Inclined Filtering

Want more information on any of these recent patents—if so, you may obtain detailed printed copies by writing direct to the U. S. Patent Office, Washington, D. C., giving serial numbers of those you want and enclosing 25¢ for each copy.

IN 1 OPERATION

The CogMill

GRINDS, CHOPS, BLENDS IN MID-AIR & DISPERSES

Solids • Liquids • Pastes Emulsions • Slurries

Pictured is the 7½ to 30 H.P. CogMill. Length, 53"; depth, 34"; height, 63" (without legs, 29"). A larger model is 6' long, 45" deep and 63" high (without legs 29").

or any combination of each, to the desired consistency, assuring uniformity of product and close control of color and taste. Solids can be cut to one-inch chunks, pulverized to finest powder, wet granulated or smoothed.

COMPLETE VERSATILITY

The desired end product and rate of production are achieved by determination of correct motor size (7½ to 50 H.P.), rotor speed (750 to 7000 R.P.M.), number (16 to 24) and type of reversible impact blades, or sharp, fixed or swinging knives, mesh of dispersal screen (.020 to 1 inch dia.) size of inlet, and type of feed (hand or variable speed motor driven screw). The versatility of the CogMill permits quick changes of all these factors.

Precise control of product temperature can be achieved by means of a hollow, double-walled working chamber through which hot or cold water is run.

EXCLUSIVE SNAP-APART DESIGN

Inlets, outlets, screens, rotor and blades are easily disassembled, thoroughly cleaned and reassembled in minutes.

All product contact areas are stainless steel—another highly important exclusive feature. Inlets and outlets are of welded construction, and ground and polished to a finish which eliminates all hidden or unavailable crevices which might harbor bacteria. All operations are performed under dustless and liquid-tight conditions. Complete separation of bearings from the working chamber eliminates any possibility of oil or grease mixing with the product. Enclosure provides safety from rotating parts. CogMills may be used as single units or as components in a continuous operation with one or more mills and associated apparatus.

Send for details, designating product, processing operation wanted and capacity desired. COG Corporation maintains a laboratory for the purpose of making test runs (at no cost to you) so that recommendations can be made as to the proper CogMill for your specific requirements.

THE COG CORPORATION

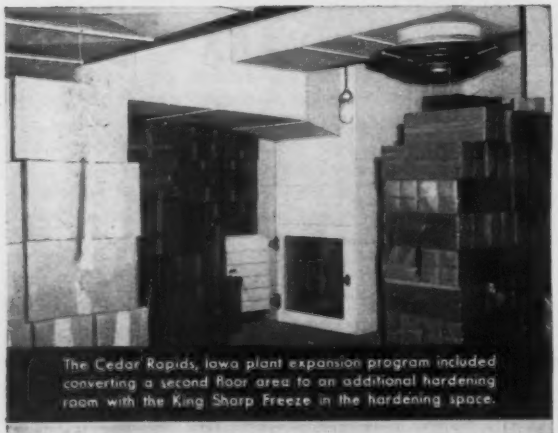
Division of Motiograph, Inc. *Established 1896*

4390 W. LAKE ST. • CHICAGO 24, ILLINOIS, U. S. A.

Borden PLANTS PROVE FLEXIBILITY OF KING SHARP FREEZE SYSTEMS

Many Borden Company plants throughout the nation have found that King Sharp Freeze Systems are adaptable to the particular needs of individual plants.

King Sharp Freeze units may be installed in the hardening space, just outside of it, above or below it. Below are two different applications which satisfied specific plant requirements.



The Cedar Rapids, Iowa plant expansion program included converting a second floor area to an additional hardening room with the King Sharp Freeze in the hardening space.

Borden's Mason City, Iowa plant achieved more efficient hardening and additional storage space with a roof installation of the King unit.

Write for detailed technical bulletin.

Manufacturers of

King COMPANY OF OWATONNA

105 North Cedar Street • Owatonna, Minn.

sharp freeze, cooling, ventilating and heating systems

Means—Anheuser-Busch, Inc., St. Louis. No. 2,823,125.

Transfer Unit for Unloading Waffles From Conveyorized Griddles Comprising Frame-Mounted Carriage, Swingable Vacuum Lift Pan—Quaker Oats Co., Chicago. No. 2,823,786.

Unit for Cutting Butter Pats From Bar, Depositing on Paper, Forming Latter Into Tray —F. Brodsky, Brooklyn, N.Y. No. 2,825,192.

Cherry-Cluster Breaker Having Conveyor, Pick-Up Finger, Cluster-Separating Cutter—Oneto-Gotelli Co., Stockton, Calif. No. 2,825,375.

Pitted-Fruit Slicer (Olives, Dates, etc.) Employing Conveyor Having Elongated Pockets With Resilient Bottom Members, Rotating Knives—G. W. Ashlock Co., Oakland, Calif. No. 2,828,788.

PACKAGING

Laminated Packaging Material Highly Resistant to Water-Vapor Transfer—General Foods Corp., White Plains, N.Y. No. 2,828,240.

Cap Tightener Comprising Fixed File Element, Means for Rotating Screw-Thread Caps on Containers — American Home Products Corp., N.Y.C. No. 2,829,479.

Packaging Smoked Meat by Wrapping in Vapor-Impervious Film, Compressing to Mould Product and Expel Air, Sealing —Armour & Co., Chicago. No. 2,830,909.

Prefabricated Milk Container (Formed From One-Piece Slotted Blank) Having Bottom Section, Upwardly Extending Seamless Main-Body Portion, Tapered Neck, Annular Top, Internal Cap-Retaining Flange —M. A. Lavigne, Verdun, Quebec, Canada. No. 2,831,623.

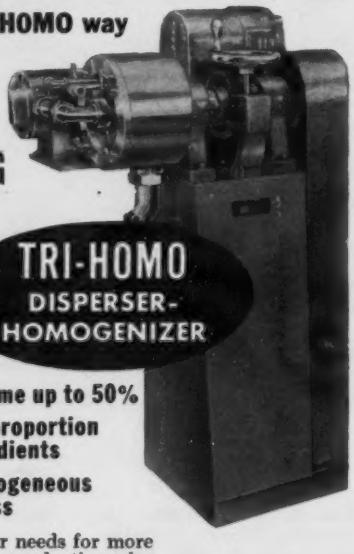
Milk-Carton Pitcher Employing Rectangular Container, Hinged Cover Formed With Pouring Spout, Hinged Handle—J. T. Anderson, Detroit. No. 2,835,414.

Coffee-Brewing Package. Containing Ground Roasted Coffee in Porous Envelope Impregnated With Mannitol.—L. Maggiore, Rockville Center, N. Y. No. 2,835,587.

Now...make it better for less!

The modern TRI-HOMO way to process...

MAYONNAISE
SALAD DRESSING
CHEESE SPREAD
BABY FOOD
FISH PASTE
and similar products



TRI-HOMO DISPERSER-HOMOGENIZER

- ▸Cuts production time up to 50%
- ▸Requires smaller proportion of high-cost ingredients
- ▸Gives perfect homogeneous blend in single pass

The answer to your needs for more efficient, lower-cost production *plus* consistent high-quality results. Approved by sanitation authorities everywhere. Get the facts about TRI-HOMO...write today.

Models for laboratory, batch or continuous production, gravity or pump feed.

TRI-HOMO SALES CORPORATION
261 Fifth Ave., New York 16

For more data, circle 370 on Reader Service Card

For more data, circle 371 on Reader Service Card

HOW TO GIVE YOUR PRODUCT THAT "SOMETHING EXTRA"

CELLULOSE GUM

KEEP YOUR FOOD AT ITS BEST with versatile Hercules® cellulose gum (purified CMC). As a stabilizer, thickening or suspending agent, emulsifier, gel-producer or film-former, cellulose gum finds numerous applications in the food processing industry. In frozen foods, for example, cellulose gum prevents ice crystal formation. Pie fillings, cake icings, salad dressings, packaged desserts, processed cheese spreads, and many other products are improved when cellulose gum is included.

MSG

FOR EXTRA TASTE APPEAL, add MSG to almost any processed food. MSG enhances the natural flavor of a wide variety of staple foods including canned soups, meats, and vegetables; frozen specialty foods; sausages, frankfurters, and other meat products. Having no flavor of its own, monosodium glutamate helps develop the natural flavors in processed foods in addition to boosting the savor of each ingredient. MSG can be as important as salt in a well-seasoned processed food—find out for yourself what this flavor enhancer can do.

HVP

NEED DELICATE YET RICH BACKGROUND FLAVOR to add character to your table and cooking sauces, vegetable, chicken, or beef soup; or canned stews and gravies? HVP (Hercules hydrolyzed vegetable protein) with its pleasant distinctive flavor is the product to use. HVP will strengthen natural flavors as in soups, gravies or sausages; or depending on the quantity used it could become the dominant flavor as in many table sauces or bouillon cubes . . . MSG used with HVP in the same product intensifies flavor to the maximum.

VITAL WHEAT GLUTEN

ADDED NUTRITIONAL VALUE for cooked or dry cereals, spaghetti, specialty breads, and other items results when vital wheat gluten is included. A natural protein concentrate derived from nutritious wheat, vital wheat gluten improves the texture of baked products as well as adding the extra protein content that consumers appreciate.

Technical data on any of these products and their uses can be obtained by writing directly to Hercules.

HERCULES

Virginia Cellulose Department
HERCULES POWDER COMPANY
INCORPORATED
900 Market Street, Wilmington 99, Delaware

VCS8-5

For more data, circle 372 on Reader Service Card

PROFESSIONAL SERVICES

PROCESSING PROBLEMS — PRODUCT DEVELOPMENT — MARKET RESEARCH — PLANT LAYOUT and DESIGN — PACKAGE DESIGN and TESTING MANAGEMENT — PUBLIC RELATIONS — GENERAL CONSULTING — PATENTS — CHEMICAL, BACTERIOLOGICAL and NUTRITIONAL ANALYSIS

INGREDIENTS FOR THE FOOD PROCESSOR

FOOD DEVELOPMENT LABORATORY
S. W. ARENSON, *Director*
Ingredient evaluation • New Products development. Specializing in flour shortenings, milk and other basic ingredients •• Facilities: chemicals and physical laboratory, bakery, spray dryer and other unit process equipment.
5140 Reisterstown Road, Baltimore 15, Maryland — 57-01 32nd Avenue, Woodside L.I. 77, New York

SCHWARZ LABORATORIES Inc.
Consultation on Food Problems
Analyses of Foods and Beverages
Food Plant Design and Process Improvement
Research and Investigations
Legal Testimony
Write for bulletin describing facilities and services
230 Washington St., Mount Vernon, N. Y.

LEWIN ASSOCIATES
Consultants
PLANT DESIGN AND LAYOUT—PROCESSING EQUIPMENT—PRODUCT AND PACKAGE DEVELOPMENT AND IMPROVEMENT—WAREHOUSING — DISTRIBUTION — MARKETING RESEARCH—ESTIMATES—REPORTS
1755 Broadway, New York 19, N. Y. — JUdson 6-1748-9

FOSTER D. SNELL
Research Laboratories
SENSORY PANEL TESTS
Food Analysis, Stability Studies, Evaluations, Packaging Problems, Vitamin Assays.
Write For "Food Facts"
22 W. 15th St., N. Y. 11 — WAtkins 4-8800

GUSTAVE T. REICH & ASSOCIATES
Consultant to the Food Industries
COMPLETE CONTINUOUS PROCESSES
Operation—Waste Disposal
AUTOMATION
4604 Osage Ave., Philadelphia 43, Pa.

STRASBURGER & SIEGEL
Chemists—Bacteriologists—Food Technologists
Specialist in Canned and Glassed Foods Laboratory Services
Testing Tomato Products, Mayonnaise, Pickles, Oils, Fats, Beverages, Sugars, Filth in Foods, Food and Drug Libels, Expert Testimony
1403 Eutaw Place, Baltimore 17, Maryland

CARROT OIL makes food golden yellow

Carrot oil, like butter, contains carotene. Carrot oil is extracted from carrots, and each pound contains up to 25 million units of carotene, the international standard of vitamin A activity.
Carrot oil is preferred for vitaminizing foods because it is a natural vegetable oil and because it contributes vitamin A activity of high stability and desirable golden yellow color. Carrot oil is not synthetic, does not contain animal fats of any kind, and does not produce fishy flavor.

SEND FOR BOOKLET
New 36-page combined catalog on carrot oil for foods, feeds, and pharmaceuticals, important readi... ...o food processors. Write today!
NUTRITIONAL RESEARCH ASSOCIATES
205 Broad St., South Whitley, Ind.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

DISPLAYED RATE

The advertising rate is $16.00 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

EMPLOYMENT OPPORTUNITIES—$37.00 per inch subject to agency commission.

INFORMATION:

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

An ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page.

UNDISPLAYED RATE

(Not available for Equipment Advertising) $1.80 a line. Minimum 3 lines. To figure advance payment count 5 average words as a line. (See ¶ on Box Numbers.)

POSITION WANTED undisplayed rate is one half of above rate, payable in advance.

BOX NUMBERS count as one additional line.

Send New ADS or Inquiries to Class. Adv. of Food Engineering, P. O. Box 12, New York 36, N. Y., For October Issue Closing Sept. 25th

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

EMPLOYMENT SERVICE

Salaried Personnel $5,000-$30,000. This nationwide service successful since 1927 finds openings in your field. Sells your abilities; arranges contacts. Present position protected. Write for details—Jira Thayer Jennings, P. O. Box 674, Manchester, Vt.

POSITIONS WANTED

Need A Live-Wire Young Executive with a Ph.D. and diversified R & D experience in chemistry and food technology? Reply only if you can offer a position with real growth opportunity. PW 8701, Food Engineering.

Technologist-Frozen Food Specialist. Twenty years experience quality control product development and line installation for the manufacture of various ready-cooked frozen foods in meat, poultry and vegetable field. Interested similar assignments with progressive packer. PW-8812, Food Engineering.

POSITION WANTED

Food Technologist-Chemist: 17 years comprehensive experience in research, development, for mulation of staples and specialties, technical service and production including administrative and managerial functions. Biochemical background. Desires position where technical experience, managerial abilities, initiative and flexibility will be fully utilized. PW-8807, Food Engineering.

FOR LEASE

For Lease—Complete vegetable and strawberry processing plant, and other modern processing machinery, including Package Machinery Corp. automatic wrapping machine, all housed in modern building located in center of industrial section of Central Arkansas. Quick Freezing Plant with 40 Tons daily capacity at —30°, and Cold Storage Warehouse with capacity of 300,000 cubic feet located on property and available for use. Railroad siding and truck dock available. For details write FL-6424, Food Engineering.

Additional Employment Advertisement on opposite page

PRODUCTION-MANAGER
for commissary operation serving restaurants, cafeterias, and retail counters with large line of freshly prepared and frozen ready cooked foods. Excellent future for man who can grow aggressively with dept. Metropolitan location with one of New York's top companies.
Send full details with first letter
Box FE 1459, 125 W. 41 St., New York 36

WE NEED
FOOD TECHNOLOGISTS and FOOD CANNING CANDIDATES
—junior to top-level
Call, write or wire:
Gladys Hunting (Consultant)
Drake Personnel, Inc.
220 S. State St., Chicago 4, Ill.
HArrison 7-8600

Your Inquiries to Advertisers Will Have Special Value . . .
—for you—the advertiser—and the publisher, if you mention this publication. Advertisers value highly this evidence of the publication you read. Satisfied advertisers enable the publishers to secure more advertisers and—more advertisers mean more information on more products or beter service—more value—to YOU.

SEPTEMBER SPECIALS

Pneumatic 18 spt. SS Vac. Filler & Cleaner Biner-Ellison Filabelmatic 12 spt. 316 S.S. FMC Hand Packed S/S Filler #MH1699 World Twin Turret Labeler C10006, 120 PM Standard Knapp Can Labelers, all sizes Diana Dicer No. 9 for meats & veg'ts. Kiefer Rotary 24 spt. 316 SS Vac. Filler. Phila. 4 Piston S/S Filler & Air Cleaner FMC 6 valve S/S Can Filler good for gals.

We Buy Complete Plants or Single Units. What Have You for Sale?

YOU CAN BANK ON

Equipment Clearing House, Inc.

111 33rd Street Brooklyn, N. Y.
South 8-4481—4482—6782

BARGAINS FOR SALE

The Ruderman Machinery Exchange of Gouverneur, N. Y., one of the largest diversified Machinery & Equipment Dealers in America, can furnish you with practically all your needs in Modern Ice Cream, Milk Plant and Electrical Equipment at but a fraction of the original cost.

WRITE—WIRE—PHONE FOR YOUR NEEDS

RUDERMAN MACHINERY EXCHANGE
Gouverneur, New York Telephone: 333-334

WANTED—3 USED CLOSING MACHINES

to close hinge-cover cartons 8½ x 3¾x 1-3/16 (depth). Peters Senior Folding and Closing. Peters CCY-L or Package Machinery's PC machines preferred. Also one Oliver Wrapper, Model 799-J with electric eye.

W-8302, Food Engineering
520 N. Michigan Ave., Chicago 11, Ill.

SEARCHLIGHT Equipment Spotting *SERVICE*

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate rebuilt and used Food processing equipment not currently advertised. (This service is for USER-BUYERS only.) No charge or obligation.

How to use: Check the dealer ads to see if what you want is not currently advertised. If not, send us the specifications of the equipment and/or components wanted on the coupon below, or on your own company letterhead to

SEARCHLIGHT EQUIPMENT SPOTTING SERVICE
Food Engineering, Classified Advertising Division, P. O. Box 12, N. Y. 36, N. Y.

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment, Spotting Service
c/o Classified Advertising
Food Engineering,
P.O. Box 12, N. Y. 36, N. Y.

Please help us locate the following equipment:

.....

.....

NAME .....TITLE.....
COMPANY .....
STREET .....
CITY .....ZONE....STATE.....

FE-9/58

ENGINEERING OPPORTUNITIES

Progressive, medium-sized, multi-plant organization located in Central Connecticut has several positions available for qualified Project Development Engineers and Machine Design Engineers. Previous experience in the development or design of medium to heavy automatic and special machinery essential. Typical experience would be as a development engineer or machine designer on packaging or metal stamping machines or similar types of mechanisms.

The Emhart Manufacturing Company is a Connecticut organization consisting of the following well-known companies: Hartford-Empire, Standard-Knapp, Skyworker, V & O Press and Maxim Silencer. As a diversified manufacturer, our machine products are leaders in the field of glass making, automatic packaging, automatic press and special machinery, and hydraulic aerial lifts.

M. E. degree preferred.

Send resume stating background, experience and salary requirements to:

Personnel Department

EMHART MANUFACTURING COMPANY
333 Homestead Avenue Hartford 2, Connecticut

WE OFFER FOR SALE

One International Size 1, Type C Centrifuge with 110V motor.
One CRCO New-Way Model NWS Glass Cleaner, w/motor & change parts 1-lb. 2-lb. economy glass.
One World Semi-Automatic Labeler, model S.
One Marlo Model F 1500 Air Cooling Unit.
One Farquhar Size O Cider Press, 7" Cylinder, 2 Loading Extensions with Pump & 3 HP motor.
One Dudley 2-Lane Unscrambler #210 w/left hand Discharge Conveyor for full cans, adjustable for standard size cans up to 401 x 411. Speed 300 CPM.
One Mojonnier vacuum type filler, model 60, w/Pump and Motor.
One Pneumatic Scale Samco Jr. vacuum type Filler, complete with pump & motor.
One Filler Machine Co. 6-spout Filler, w/Infeed Device, S. S. Hopper, Table Top Cylinders, and Monel Pistons. Capacity 96 qt. jars/min.
One Brown Bag Model PF 100 Filling and Sealing Machine.
One Triangle model SP Portable Top or Bottom Carton Sealer, w/motor. Capacity 25 sealed ends per minute.
One Standard Knapp Compression Unit.

P. O. Box 840, Terre Haute, Indiana

SUMMER SPECIALS

1,000 gallon Cherry-Burrell Cold Wall Processor
4—600 gallon S. S. Tanks, 58" x 60"
150 gallon Pfaudler S. S. Tank, bottom agitator.
300 gallon Tolan S. S. Vacuum Pasteurizer
S. S. Plate Type Heat Exchangers
1½" and 2" Waukesha Sanitary Pumps
2" Viking Sanitary Pumps
Centrifugal Pumps 2, 5, and 7½ H. P.
Gast Vacuum Pumps ½, 1 and 1½ H. P.
50 Gal. S. S. Tank, beater type agitator.

"Send us your inquiries".
WE FLY TO BUY

LESTER KEHOE MACHINERY CORP.
P. O. Box 82 Gibraltar 7-3410
23 Congress St., Staten Island 4, N. Y.

BEST BUY

CANCO WALKING BEAM COOLER — 6' x 20' with spray pipes, & pusher arm feed. Conveyor frame on discharge end. Comp. with 2 pumps directly connected to motors. **Price $2500.00**

ME MACHINERY AND EQUIPMENT CO.
123 Townsend St. · San Francisco 7, Calif.

2—**Case Gluers,** S-K #429, 8' compression.
6—**Dryers,** Louisville Steam Tube 6' x 50'. 6' x 25'.
1—**Niagara** type 316 St. St. Pressure Filter, Model 510-28, 500 sq. ft.
1—**Niagara** T304 St. St. Filter Model 36H-10-3. Horizontal tank. 110 sq. ft.
5—Dewatering Presses — **Davenport** 1A, 2A; **Louisville** 8-Roll 36".
4—Double Drum Dryers: 42" x 120", 42" x 100", 36" x 84", 32" x 72".
3—St. St. Vac. Shelf Dryers, 100 sq. ft.
4—**Evaporators,** Stainless steel, 588, 250, 20 sq. ft.
2—**Groen** 150 gal. St. St. Jacketed Kettles, double motion agitators.
6—**Mixers,** Spiral Ribbon 336, 200, 75, cu. ft.
1—**Patterson-Kelley** 5 cubic ft. Twin Shell Blender, St. St.
1—**Baker-Perkins** 200 gal. double arm jacketed mixers or shredders.
2—**FMC Crusher** Preheaters, single tube.
3—**Fitzpatrick** Comminutors, St. St. models D. F.
1—2950 gal. **Heil** Stainless steel single axle Truck Tank.
30—Stainless Steel Tanks—30 gal. to 10,000 gal. sizes. NEW & USED.

PERRY EQUIPMENT Corp.

1411 N. 6th St. Phila. 22, Pa.
POplar 3-3505

WIRE US COLLECT!

ONE OF THE LARGEST STOCKS IN THE UNITED STATES!

1—Diana Model 9 Universal Dicer
1—M & S 6 Piston S.S. Filler, #300 can
38—S.S. steam jckt'd Kettles, 20-60 gal.
1—Burt Simplex Filler, w/hopper motor
1—Read dbl sigma blade Mixer, type E
1—Hayssen Mod. 5-11 Wrapper, w/motor
1—Elgin D-15 Screw Capper, ½ HP mtr.
2—Sprague-Sellis 42" x 72" vert. Retort.
3—RDH-18 Rietz Disintegrators, S.S. cont.
1—Langenskamp Finisher, Mod. 500-S, S.S.
1—Std. Knapp type D Labeler, adj #10
1—A-B, #2-2½, Cooker & Cooler, 55" dia.

For immediate quote, wire or phone collect—GA 1-1380

MACHINERY AND EQUIPMENT COMPANY
123 Townsend St. · San Francisco 7, California

LATE MODEL PACKAGE MACHINERY

Package Machinery. Models FA, FA2, F10J Bundler also Hayssen, Scandia
World Bee Line, High Speed 120 BPM Model D Labeler.
Resina Capper, High Speed and Single.
Pneumatic Straight Line 20 Head Filler.
Pneumatic, Pony, World Labelers.
Horix, Karl Keifer, Ertel Fillers.
Pneumatic Scale High Speed Cartoning Line (also 30 CPM)
Battle Creek Model 51 Wrappers
Standard Knapp #429 Case Sealers.
Standard Knapp High Speed Can Labelers

SELL US YOUR SURPLUS EQUIPMENT

RPM INC.
254 - 36TH STREET
BROOKLYN 32, NEW YORK
STerling 8-1550

A BRILL BUY . . . IS THE BEST BUY

SPECIALS

1—Buflovak 250 sq. ft., 304 S.S. single effect forced circulation Evaporator.
1—Harris 3' dia. 304 S.S. single effect Evaporator with coils.
2—Pfaudler 1500 gal. glass lined, jacketed, agitated Reactors.
1—3500 gal. 304 S.S. jacketed agitated Tank, 9' x 7'.
2—New 5000 gal. 304 S.S. Horizontal Tanks, 6'6" x 20'4".
1—Link Belt 7' 5" x 24' Monel Roto Louvre Dryer.
2—Bird 18" x 28", 24" x 38", 304 S.S. solid bowl continuous Centrifuges.
2—Sparkler 22828, 14D4 Pressure Filters, 304 S.S.
2—American 42" x 120" atmospheric double drum Dryers.
4—Sweetland Filters, #7, #10, #12.
1—Day D10 1000# Powder Mixer, 304 S.S.
1—Devine Vacuum Shelf Dryer with 20—59" x 78" shelves.

BRILL EQUIPMENT COMPANY
2401 Third Ave., New York 51, N. Y.
OR
4101 San Jacinto, Houston 4, Texas

Modern Packaging Equipment

SPECIAL OFFERINGS
PNEUMATIC SCALE COMPANY High Speed fully automatic Cartoning Line.
PNEUMATIC SCALE COMPANY Medium Speed fully automatic Cartoning Line.
Both Lines in 11,000 Series.

PACKAGE MACHINERY CO. Model FF Wrappers with electric eye. Practically new.
STOKES & SMITH Model D Neverstop.
FERGUSON fully automatic Cartoning Line.
STANDARD KNAPP & PACKOMATIC Top & Bottom case sealers.
PNEUMATIC SCALE COMPANY Double Package maker and ROTARY Top Closures.
PNEUMATIC SCALE COMPANY High Speed Bottling Line, consisting of: Bottle Cleaner, 20 Spout Vacuum Filler, 4 head Capper and Duplex Labeler, 12,000 series. May be purchased as a complete line or individually.
STOKESWRAP and TRANSWRAP, Models A and B.
PACKAGE MACHINERY, SCANDIA & HAYSSEN Wrappers with and without Electric Eye.
SIMPLEX Bag Making Machines.
STOKES & SMITH and TRIANGLE Auger Fillers.
RESINA, CAPEM and PNEUMATIC 1, 3 and 4 Head Cappers.
PNEUMATIC SCALE CO. Combine Cartoning Unit.

Partial List—send for complete list of equipment in stock.

TOP PRICES FOR SURPLUS PACKAGING EQUIPMENT.

ALLIED EQUIPMENT CO.
940-946 Nepperhan Ave., Yonkers 3, N. Y.
Phone: Yonkers 3-0442

AARON *offerings*

Areco Stainless steel Ribbon mixers—200 lbs to 2000 lbs Cap.
Fitzpatrick Model D Comminuting Machine, All S/S, 3 HP.
Under & Over Scales. Mfd. by exact weight, Toledo & Detectogram. 5 lb to 50 lb Cap.
Hi speed & slow speed ⅓ HP Portable Agitators.
Portable Refrigerators, walkin type, 6'x5'x8'. All alum constr., complete w/Freon Unit.
J. H. Day #4 Mixer. York Water Chillers—5 ton Capacity.
Robinson Ribbon type mixer, large size.
Reiter skate conveyors—new surplus—12 inch, 10 foot lengths.
Stainless Steel holding tanks—all sizes—jacketed & unjacketed, some with agitators.
York flake icers—1 ton capacity.

SPECIAL OFFER • • •
Brand New 40 & 100 Gallon Stainless Clad Kettles, ¾ Jacketed for 40 P.S.I.
100 gal. $325.00 ea.
40 gal. $175.00 ea.
Complete with hinged cover, safety & draw valve

Send for our complete listings.

AARON EQUIPMENT CO. Div. of ARECO, INC.
1849 S. Blue Island Ave. Chicago 8, Ill.

USED EQUIPMENT FOR SALE

Homogenizers • Separators • Coolers
Clarifiers • Electromatic Fillers • Processors
Storage Tanks • Pumps
Ammonia & Low Freon Compressors

STUART W. JOHNSON & CO.
LAKE GENEVA, WIS.

"Expand With Good Used Equipment"

1—Colton #17 S.S. Automatic Tube Filler & Closer.
1—Sharples #16 Stainless Steel Centrifuge.
3—Lee 80 gallon All Stainless Kettles.
2—Tanks—300 & 1200 gallon Stainless Steel.
1—Copper Jack. Kettle 300 gals. w/agitator.
1—Stokes 22 gal. S.S. Gran. Mixer.
1—Devine 6 Shelf Vacuum Dryer Hercolite Coated.
1—Devine 17 Shelf Vacuum Dryer 39"x41".
1—Pfaudler 500 gallon Jack. Reactor.

SEND FOR BULLETIN A-42 FOR LATEST LISTINGS

The MACHINERY & EQUIPMENT Corp.
293 Frelinghuysen Ave. Newark 12, N. J.
TAlbot 4-2050

FOR SALE

1—Pfaudler RP2i, 2i valve S.S. Piston Filler
1—American 400 Closing Machine
1—American #1 HiSpeed Vacuum Machine with Vacuum Pump
1—CRCO Dumper and Unscrambler

ALARD INDUSTRIES INC.
Post Office Box 367 Williamson, N. Y.

FOR SALE

100 Gal. Copper Steam Jacketed Mixing Kettle
300 Gal. Copper Still with Condenser and Tank
Model MPU-15 Miller Cellophane Wrapper
Model MPS-17 Miller Wrapper and Sheeter
100 Gal. Read Jacketed Double Armed Dough Mixer
100 Qt. Read 3-speed Master Mixer

SAVAGE BROS. CO.
2638 Gladys Ave. Chicago 12, Ill.

FOR SALE

2—90'x32" Buflovak roller drier, good condition, complete with S.S. stacks.
Wickes 125 H.P. water tube boilers. Ray Horizontal Rotary oil burner system, including approx. 50' stack.

DARIGOLD PLANT
P. O. Box 157 Bellingham, Wash.

TANK TRAILERS

FOR FOOD PRODUCTS
Stainless Steel - new and used.
HACKETT TANK COMPANY, Inc.
P.O. Box 803, Packers Sta. Kansas City, Kans.
MAfair 1-2363

TANKS FOR SALE

23 tanks totaling more than 100,000 gallons, each phenolic lined, at closed Cincinari food plant; capacities from 2800 gal. ea. to 4800 gal. ea.; sizes 7' dia. x 14' long; perfect for storage, etc., now erected. Buy one tank or all, priced about 7¢ per gal. depending upon quantity ordered. Write for free descriptive listing.

FS 8500, Food Engineering
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

FOR IMMEDIATE DELIVERY

UNION Rebuilt Machinery Established 1912

MOST MODERN PACKAGING AND FOOD PROCESSING MACHINERY

3—Hayssen Model F Compaks with net weight scales, bulk and dribble feeds, Electric Eyes

2—Package Machinery Model C Transwraps, with net weight scales, bulk and dribble feeds, Electric Eyes

8—Scandia Model SF86F high speed automatic Wrappers with Electric Eyes

Hayssen, Oliver, Scandia, Hudson Sharp, Miller Automatic Wrappers

Package Machinery Models FA, FA-2 and FA-4 Wrappers, with or without Electric Eyes or Tear Tape

1—Pneumatic Scale Automatic Carton Feeder, Bottom Sealer and Top Sealer with interconnecting conveyors

Standard Knapp, Burt, CRCO Nu-Way Wrap-around Labelers

World, Ermold and Pneumatic Semi Automatic and Automatic Labelers

6—Fitzpatrick Model D and Model D-8 Stainless Steel Comminuters

Baker Perkins, Day, W & P Heavy Duty Mixers, 12 to 150 gal. caps.

2—Day Size G, 2000 lb. Ribbon type Powder Mixers

Mikro Pulverizers, Models ISH, 2TH, 3TH, 4TH

Day, Rotex, Robinson, Tyler-Hum-mer, Selectro and Gayco Sifters

Complete Details and Prices Available On Request

UNION STANDARD EQUIPMENT CO.
318-322 Lafayette St., New York 12, N. Y.
Phone: CAnal 6-5334

WIRE US COLLECT!

Special of the Month
STANDARD KNAPP MODEL F HIGH SPEED CASER
Comp. with feed elevator & discharge conveyor. Very good condition
price—$1250.00

ME MACHINERY AND EQUIPMENT CO.
123 Townsend St. - San Francisco 7, Calif.

THE PRICE IS RIGHT

4—220 cu. ft. (7,500) Sprout-Waldron heavy duty steel Double Ribbon Powder Blenders.

1—600 gal. S. S. T316 Kettle, 15# jkt. 20 H.P. XP Varidrive motor, heavy duty agitator.

1—275 gal. S. S. T316 Kettle, 25# jkt. 10 H.P. XP Varidrive motor, heavy duty double acting agitator.

2—Pneumatic Scale Co. High Speed Packaging Lines complete, 12,000 series, Like New.

4—Shell and Tube Preheaters, Stainless Sanitary and insulated. From 65 to 150 sq. ft.

1—Vacuum Single Drum Dryer, 60" x 120", condenser, receivers, drives, etc.

1—3,000 gal. Stainless Sanitary Vacuum Tank with Stainless heating coil having 295 sq. ft.

2—Simpson Stainless Style UD size #2 intensive Mixers.

2—Merco Separators Type B-16, Stainless discs.

4—Atmospheric Double Drum Dryers, 42" x 120", 42" x 90", 32" x 100", 32" x 72".

1—6 ft. x 15 ft. Stainless Sanitary Vacuum Pan with condensor, vacuum pump, etc.

1—60,000 lb. per day Edible Oil Deoderizing Plant complete.

BEST EQUIPMENT COMPANY, INC.
1737 W. Howard St. Chicago 26, Ill.
AMbassador 2-1452

BARGAIN BUYS in good REBUILT EQUIPMENT

4 Unused Pfaudler Glass Lined REACTORS Model R78; 2000 Gal. Jkt. 75 Lbs.

3 A. O. Smith Stainless Lined Pressure Tanks; 10' x 18'7"; 11,000 gal. like new

Blaw-Knox Stainless Reactor or Resin Kettle 7'6" x 7'6"; welded; Jacketed

4 Stainless Steel 5000 Gal. Closed Top Tanks, Welded construction; 10' diameter; agitated

Steel Reaction Kettle; 1500 Gal.; ASME; 72" x 62"; Jacketed; Agitated; Motorized

NEW Falcon Stainless Reactor; 125 Gal. 30" x 30"; Jacketed; Agitated; Motorized

A. T. & M. Stainless 60" Centrifugal Extractors; link suspended; center slung; vapor-lite hoods

10 NEW ¾ HP Portable Agitators; geared 431 RPM

Stainless Steel Heat Exchangers 65 to 4000 sq. ft.

Charlotte Stainless Model ND Chemicolloid Mill

Cherry Burrell Stainless Steel Homogenizer #1500 Model #41. Sanitary with 25 HP motor

Baker Perkins Stainless Steel 100 Gal. Double Arm Mixer; Vac. Cover; Jkid.; 75 HP Motor

Largest Stock of Baker Perkins Heavy Duty Double Arm Mixers from Lab. size to 300 Gal.

Day Cincinnattus Stainless Steel 300 Gal. Jacketed Double Arm Mixer; XPL Motor

Fillers both Automatic and semi-auto. for Liquids, pastes, semi-liquids, powders, Crystals etc.

Automatic Labelers and semi-automatics for Bottles, Cans, Packages and all types of containers

Standard Knapp Automatic Case Gluers and Sealers

Sifters and Screens by Day RoBall; Orville Simpson Rotex, Gyro Whip; Patterson, Robinson; all sizes, types

4 Stainless Mikro Pulverizers Model No. 2; other Mikros from Bantam size up to No. 4

Fitzpatrick Stainless Comminuators; Models D and K

Hammer Mills, Grinders and Crushers by Williams, Gruendler, Robinson, Raymond and other standard makes

Tumbling Batch Mixers; 17 cu. ft. 75, 168 and 300 cu. ft.

Stainless Lined Rotary Dryer 50" x 28' with Oil Burner, Combustion Chamber

Struthers Wells Stainless Drum Dryer 4' x 5'

Bagley & Sewell Double Drum Dryer; 28" x 60"

Buflovak Dbl. Drum Dryer 40" x 120" complete

FMC Pays MORE For Your Surplus

Hersey Rotary Gas Fired Counter Current Dryers; 5' x 25' complete accessories

Stokes Rotary Jacketed Dryer 18" x 8

American Dbl. Door Sterilizer; 30" x 48" x 84"

Fort Wayne Sterilizer No. 24A 5' x 10' 4"

Filter Presses in Stainless, Aluminum, Cast Iron and Wood from 7" to 42" complete

Rotary Cutters by Abbe, Ball & Jewell, Whitin, Leominster, Sprout Waldron . . . all sizes

BRAND NEW FALCON MIXERS

In Stock for Immediate Shipment Stainless or Mild Steel Approved Sanitary; smooth interiors Double Ribbon mechanism quickly removable for cleaning; Mixes heavier Load with Less Power State your Size; WE HAVE IT.

FIRST MACHINERY CORP.

208-289 TENTH STREET, BROOKLYN 15, N. Y.
Phone: STerling 8-4672 Cable: EFFEMCY

IN STOCK AT LOEB'S . . . .

Cappers: Resina, Pneumatic Scale, Swanson, Capem.
Centrifugals: Fletcher 12" copper 17" stainless, 20" lithcoated, Tolhurst 26" rubber.
Clarifiers: De Laval and Sharples. st. st.
Crystallizers: 550 gal. st. st. jkt. agit.
Dryers: Link Belt Mono Tube. monel.
Dryers: Devine 2 x 4 vac. drum st. steel.
Dryer: Direct Heat 4' x 20'.
Dryer: Nordyke-Marmon 120 hu.
Fillers: liquid: vacuum, siphon, gravity.
Fillers: Stokes, Colton, Elgin, Geyer, M&S Co.
Fillers: powder Speedee, Triangle, Stokes & Smith.
Filter Presses: Sperry, Shriver 6"-36".
Filters: Int. pressure—Alsop, Sparkler, Lomax, Sweetland with 30 24" st. st. leaves.
Filters: Rotary Vacuum—Elmco, Oliver, Bird.
Homogenizers: 25, 60, 125, 1200 GPH.
Kettles: Dopp 150 gal., jkt. 20 hp. s.s. agit.
Kettles, Stainless steel: 20 to 500 gal. with and without agitators.
20 gal. Groen gas fired st. steel (New).
Labelers: Burt Knapp, New Jersey, World. World Bee Line, N. J. series 300 thermoplastic.
Mills, hammer: Mikro, Gump, Prater, Raymond, JayBee, Jeffrey, Williams, Fitzpatrick.
Mills, colloid: Charlotte 20 hp., 1 hp
Mixers, dough type: single and double arm.
Glen Power Plus 340-qt. 5 hp.
Powder: 50 to 2000 lb. capacity.
Gemco 5" x 14", stain. steel, 40 cu. ft. cap.
Day high speed 40 hp.
Day #8 st. st. D.A. 20 hp.
Muller: Simpson 39½" type 316 s. s. bowl.
Pan, Vacuum: Harris 42", stain. steel.
Percolator: Pfaudler 54 x 42" stain. steel.
Pumps: Centrifugal, rotary, gear, vacuum.
Sealers: Standard-Knapp 429, 20' compresser.
Separator: De Laval Nozle-Matic AC VO
Tablet Presses: Single punch and rotary.
Tanks: Stain. steel 25 gal. to 1200 gal.

Send us your inquiries and list of idle equipment

LOEB EQUIPMENT SUPPLY CO.
820 WEST SUPERIOR ST. • TELEPHONE SEeley 8-1431 CHICAGO 22, ILLINOIS

ADVERTISERS IN THIS ISSUE

Algin Corp. of America 163
Allegheny Ludlum Steel Corp. 94
Allied Chemical Corp.
National Aniline Div. 79
Allis-Chalmers Mfg. Co. 97
Angelus Sanitary Can Machine Co. ... 19
Ashworth Bros., Inc. 103

Baltimore Spice Co., The 159
Bausch & Lomb Optical Co. 4
Blaw-Knox Co.
Dairy Equipment Div. 135
Bliss Co., E. W. 142
Buffalo Weaving & Belting Co., Inc. ... 157
Burt Co., F. L. BL180
Butler Manufacturing Co. 18

Cambridge Wire Cloth Co., The 92
Clark Equipment Co. 113
COG Corp.
Div. of Motiograph, Inc. 171
Continental Can Co.
Gair Div. 125
Metal Div. 10-11
Crown Cork & Seal Co., Inc. 47
Crown Zellerbach Corp.
Gaylord Container Corp. 170
Western Waxide Div. 164
Crucible Steel Company of America
Trent Tube Co. 41
Cyclone Fence Dept., Amer. Steel & Wire Div., United States Steel 67

Day Company, The J. H. 60
Dodge & Olcott, Inc. 101
Dodge Manufacturing Corp. 105
Dow Corning Corp. 167
du Pont de Nemours & Co., (Inc.), E. I.
Finishes Div. 179
Grasselli Chemicals Dept. 33
Dustex Corp. BR127

Emery Co., The A. H. 32
Exact Weight Scale Co., The 8

Federal Paper Board Co., Inc. 71
Ferguson Co., J. L. 158
Finnell System, Inc. 114
Firmenich Inc. 35
Food Machinery & Chemical Corp.
Canning Machinery Div. 6
FMC Packaging Machinery Div.
Stokes & Smith 77
Foxboro Company, The 166
Fritzsche Brothers, Inc. 44

Gardner-Denver Co. 154-155
General American Transportation Corp.
Tank Car 46
General Chemical Div.
Allied Chemical Corp. 24
Globe Woven Belting Co., Inc. 112
Goodrich Industrial Products Co., B. F. 25
Gottscho, Inc., Adolph TR153
Great Western Sugar Co., The 17
Griffith Laboratories, Inc., The 129

Hayssen Manufacturing Co. 150
Heekin Can Co., The 81
Hercules Powder Co., Inc. 96
Virginia Cellulose Dept. 173
Hoerner Boxes, Inc. 130
Hope Machine Co. BL136
Howe Scale Co., The 16
Hunt Machine Co., Rodney
Process Equipment Div. 12

International Salt Co., Inc. 93

Jamison Cold Storage Door Co. 85
Jenkins Bros. 14
Johns-Manville
Celite Filter Aids 162
Jones & Co., Inc., R. A. 116
Jones & Laughlin Steel Corp.
Stainless & Strip Div. 165

Kartridge-Pak Machine Co. 134
Keico Co. 58
King Co. of Owatonna, The L172
Klenzade Products, Inc. 57
Koch Equipment Co. 160

Landish Co.
Tri-Clover Div. 27
Lake States Yeast Corp. 122
Larrson Corp. 136-137
La Porte Mat & Mfg. Co. TR127
Link-Belt Co. 13

Mack Trucks, Inc. 42
Manton-Gaulin Mfg. Co., Inc. 128
Merck & Co., Inc. 22, 151
Mercury Heat Sealing Equipment Co. 26
Mid-West Metallic Products, Inc. 30
Minneapolis-Honeywell Regulator Co. ... 148
Monarch Mfg. Works, Inc. 95
Morton Salt Co. 9

Nash Engineering Co. 48
National Starch Products, Inc. 72-73
Nichols Engineering & Research Corp. 80
Norda, Inc. ..... Third Cover
Nutritional Research Associates 174

Oakite Products, Inc. 37
Olin Mathieson Chemical Corp.
Forest Products Div. 147

Package Machinery Co. 90
Patterson-Kelley Co., Inc. 168-169
Pfaudler Co., The
Div. of Pfaudler Permutit, Inc. 146
Pfizer & Co., Inc., Chas. 141
Pittsburgh Corning Corp. 138
Pneumatic Scale Corp., Ltd. 139
Polak & Schwarz, Inc. 133
Powell Valves 102

Republic Steel Corp. 106-107
Riegel Paper Corp. 31
Robbins & Myers, Inc. 121
Ryerson & Son, Inc., Joseph T. 140

Sarco Co., Inc. 34
Schutte & Koerting Co. 126
Sigmamotor, Inc. TL180
Spraying Systems Co. BR136
Sprout, Waldron & Co., Inc. 118
Standard Conveyor Co. 149
Standard Metal Products Co. 54
Standard Oil Co. 161
Stange Co., Wm. J. 69
Stephens-Adamson Mfg. Co. 36
Sterwin Chemicals, Inc. ..... Second Cover
Stewart-Warner Corp.
Alemite Div. 45
Strong-Scott Mfg. Co., The 156
Sunkist Growers 39
Surface Combustion Corp. 131

Taylor Instrument Cos. 120
Thermal Research & Engineering Corp. 5
Toledo Scale Corp. 104
Tri-Homo Scales Corp. 172

Union Bag-Camp Paper Corp. 20-21
United States Gasket Co., Plastics Div.
of the Garlock Packing Co. 38
United States Rubber Co.
Mechanical Goods Div. 98
U. S. Stoneware Co., The 119

Van Ameringen-Haebler, Inc. ... Back Cover
Viking Pump Co. TR153
Vilter Mfg. Co., The 100

Wallace & Tiernan, Inc. 124
Waxed Paper Merchandising Council, Inc. 40
Western Condensing Co. 84

Yarnall-Waring Co. 117
York Corp. 152
York Food Machinery Co. 132

* * *

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

PROFESSIONAL SERVICES 174
EMPLOYMENT
OPPORTUNITIES 174, 175
EQUIPMENT
(Used or Surplus New)
For Sale 175-177
WANTED
Equipment 175

ADVERTISERS INDEX

Aaron Equipment Company 176
Alard Industries, Inc. 176
Allied Equipment Company 176
Best Equipment Co., Inc. 177
Brill Equipment Company 176
Darigold Plant 176
Drake Personnel Inc. 174
Emhart Manufacturing Company 175
Equipment Clearing House Inc. 175
First Machinery Corp. 177
Food Processing Equipment Co. 175
Hackett Tank Co. 176
Johnson & Co., Stuart W. 176
Kehoe Machinery Corp., Lester 175
Loeb Equipment Supply Co. 177
Machinery & Equipment Corp., (Newark) 176
Machinery & Equipment Co., Inc. (Calif.) 175-176
Perry Equipment Corp. 175
RPM Inc. 176
Ruderman Machinery Corp. 175
Savage Brothers Equipment Co. 176
Union Standard Equipment Co. 177

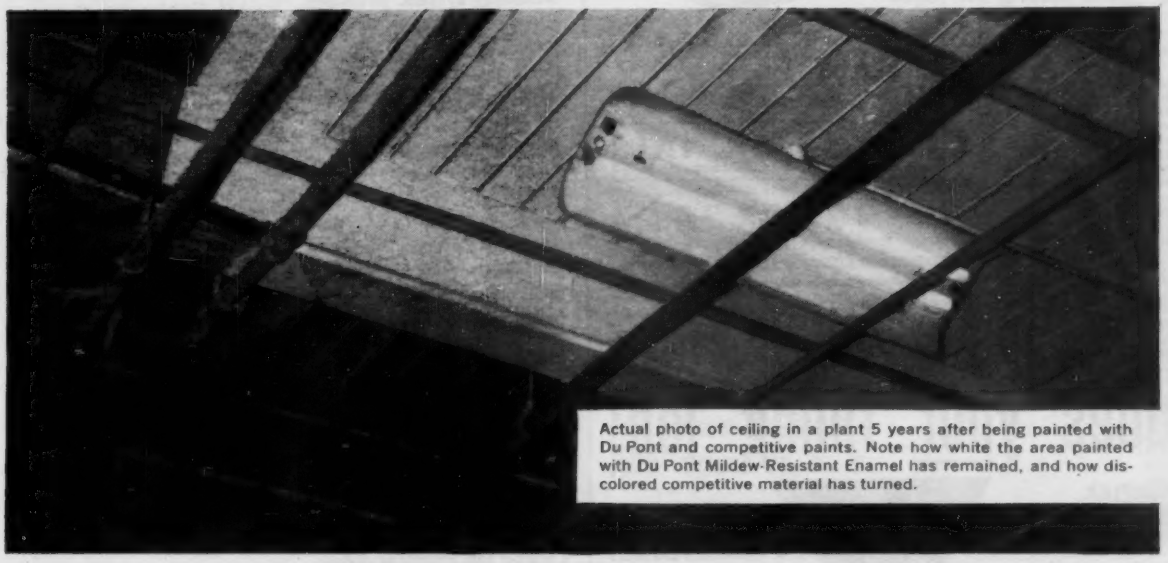
PUBLICATION HEADQUARTERS: 330 W. 42nd St., N.Y. 36, N.Y.

G. E. Riddell ..... Adv. Sales Mgr.
E. C. Saint ..... Promotion Mgr.
A. Porianda ..... Research Mgr.
J. Tsivgoulis ..... Business Mgr.
R. A. Gran ..... Advertising Make-Up

SALES REPRESENTATIVES

ATLANTA 3 .... Robert H. Powell, Jr. 1301 Rhodes-Haverty Bldg.
BOSTON 16 ..... Paul T. Fegley 350 Park Square Bldg.
CHICAGO 11 ..... Lockwood B. Seegar 520 N. Michigan Ave.
Harvey W. Wernecke
CLEVELAND 13 ..... Tom E. Taylor 55 Public Square
DALLAS 1 ..... Gene Holland 1712 Commerce St.
DENVER 2 ..... William C. Woolston 1740 Broadway
DETROIT 26 .... Lockwood B. Seegar 856 Penobscot Bldg... Tom E. Taylor
LOS ANGELES 17. Daniel A. McMillan 1125 West Sixth Street
NEW YORK 36 ..... Paul T. Fegley 500 Fifth Avenue
Frank W. McCarthy
PHILADELPHIA 3. Edward A. Martin 6 Penn Center Plaza
PITTSBURGH 22 .. Edward A. Martin 1111 Oliver Bldg.
SAN FRANCISCO 4
William C. Woolston 68 Post St.
ST. LOUIS 8 .... Lockwood B. Seegar Continental Bldg.
FRANKFURT/MAIN, GERMANY
M. R. Zeynel 15, Landgraf-Wilhelm
LONDON E. C. 4, ENGLAND
E. E. Schirmer 95 Farrington Street

THE PROTECTION LASTS WITH DU PONT MILDEW-RESISTANT ENAMEL



Actual photo of ceiling in a plant 5 years after being painted with Du Pont and competitive paints. Note how white the area painted with Du Pont Mildew-Resistant Enamel has remained, and how discolored competitive material has turned.

It's odorless! Cuts maintenance costs!

Solves mildew and maintenance problems in hundreds of food plants

Tests prove that in most types of food processing plants, Du Pont 881 Mildew-Resistant Enamel Oyster White effectively retards mildew formations for months . . . eliminates the need for constant cleaning and scrubbing. It also resists chipping and cracking . . . stays bright looking. Like all Du Pont Maintenance Paints, it's pre-tested until perfect for your job. For complete information, mail the coupon . . . now!

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Finishes Division, Dept. FS-59
Wilmington 98, Delaware

Gentlemen: Please send me, without obligation, free literature on how to combat mildew.

Name_____ Title_____

Company_____

Address_____

City_____ State_____

For more data, circle 373 on Reader Service Card

PUMP LIQUIDS GASES SLURRIES

WITHOUT CONTAMINATION OR CORROSION

Wavelike Motion of Steel Fingers Forces Material Through Tubing

Cap. 0.2 cc. per min. to 4.5 G.P.M.

Prices $60.00 to $550.00 depending on size and accessories

Write for Descriptive Literature

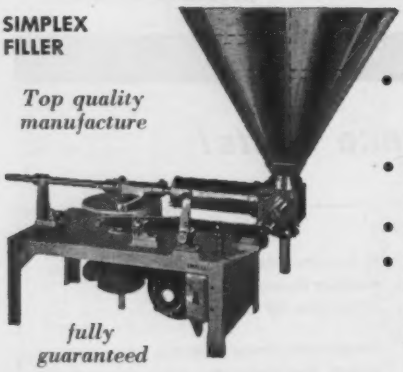
SIGMAMOTOR, INC.
22 North Main St. • Middleport, N.Y.

For more data, circle 374 on Reader Service Card

This inexpensive filler does your filling job!

SIMPLEX FILLER

Top quality manufacture



fully guaranteed

- HANDLES LIQUIDS AND SEMI-SOLIDS!
- ADJUSTABLE 1 TO 32 OZ.!
- EASILY CLEANED
- FILLS 15 OR 30 BOTTLES, JARS OR CANS PER MINUTE!

Write for circular FE on this Model A filler or on Simplex automatic fillers

CERTAIN SALES TERRITORIES AVAILABLE . . . AGENCY INQUIRIES INVITED

F. L. BURT CO.—571 7th ST.—SAN FRANCISCO 3, CALIF.
PHONE KLONDIKE 2-2020

Name.....

Address.....

City.....State.....

For more data, circle 375 on Reader Service Card

Reader Service . . .

FOR MORE INFORMATION

For more facts about equipment and supplies cited in editorial pages or advertisements,
Or copies of catalogs mentioned in Just Off the Press or Advertisers' Literature—
Note key numbers on those items, circle same numbers on Reader Service card, and mail.
Check-list of equipment and supplies (back of facing page) also has key numbers. See reprints at right.

ADVERTISERS' LITERATURE

Offered in ads received up to 10th of last month. For copies circle key numbers on card at right.

Materials Handling

Nestaway system. Brochure, Mid-West Metallic Products, Inc.—159

Cyclone metal conveyor belt. Catalog No. 5, U. S. Steel—163

Wire mesh belt. 130-p. reference manual, Cambridge Wire Cloth Co.—164

Metal process belt. Illustrated literature, Ashworth Bros., Inc.—168

Steel conveyor belting. Illustrated literature, La Porte Mat & Mfg. Co.—173

Roller & belt conveyors. Bulletin 309, Standard Conveyor Co.—180

Keller air hoist. Bulletin 80, Gardner-Denver—183

Electric lift truck. Brochure, Clark Equipment Co.—187

Conveyors, elevators. Redler Catalog 556, Stephens-Adamson Mfg. Co.—188

Plastex belt. 14-p. booklet, Buffalo Weaving & Belting Co.—205

Processing Equipment

Packaged air heaters. Bulletin 112, Thermal Research & Engineering Corp.—156

Day Hy-R-Speed mills, New bulletin, J. H. Day Co.—162

Microclone dust collector. Folder, Dustex Corp.—174

Submicron disperser. Bulletin SMD-55, Manton-Gaulin—175

Colloid mill. Bulletin C-57, Manton-Gaulin—176

Lab homogenizer. Bulletin LH-55, Manton-Gaulin—177

Heat exchangers, rotary piston fillers, glassed-steel storage tanks, centrifuges, dry-blenders, wiped film evaporators. Bulletins, Pfaudler Co.—179

Rotary portion former. Brochure, York Food Machinery Co.—201

Instantizers. Bulletin, Blaw-Knox Co.—202

Pulverizer & classifier. Color bulletin, Strong-Scott Mfg. Co.—204

Pumps & Air Compresssors

Pumps. Bulletin BE, Viking Pump Co.—181

RX compressors. Bulletin HAC-40, Gardner-Denver—182

Pumps. Descriptive literature, Sigmamotor, Inc.—185

Moyno pumps. Bulletin 30-FE, Robbins & Meyers, Inc.—199

Pipes, Valves, Traps, Tubing

Spray nozzles. Catalog 1, Monarch Mfg. Works, Inc.—165

Spray nozzles. Bulletin N-618, Yarnall-Waring Co.—170

Spray nozzles. Catalog 24, Spraying Systems Co.—178

Pipe & tubing. 48-p. handbook, Trent Tube Co.—195

Tygon tubing. Bulletin T-97, U. S. Stoneware—198

Power, Generators, Motors, Transmissions

Screw conveyor drive. Technical bulletin, Dodge Mfg. Corp.—197

Direct contact steam heater. Bulletin 3A-HC, Schutte & Koerting—200

CIRCLE NUMBERS ON CARD

Advertisers' Literature (cont'd)

Refrigeration, Air Conditioning

Condensers, coolers, exchangers. Bulletin 707, Vilter Mfg. Co.—166

Ammonia compressors. Bulletin 817, Vilter Mfg. Co.—167

King sharp freeze system. Technical bulletin, King Co. of Owatonna—184

Packaged water chiller. Catalogue EM-213, York Corp.—203

Controls & Instruments

Weight classifier. Bulletins 3333 & 3347, Exact Weight Scale Co.—157

Weightograph. Detailed booklet, Howe Scale Co.—158

Scales. Weight Fact Kit, Toledo Scale Corp.—169

Merchen scale feeder. Bulletin, Wallace & Tiernan Corp.—172

Refractometer. Complete data, Bausch & Lomb—190

Tank weighing system. Bulletin 582, A. H. Emery Co.—192

Temperature control. Bulletin No. 620, Sarco Co.—194

Magnetic flow meter. Bulletin 20-14B, Foxboro Co.—207

Ingredients, Chemicals

Algin products. Technical data, Kelco Co.—196

Monosodium glutamate. Technical data, Hercules Powder Co.—208

Packaging Machinery

Simplex fillers. Circular FE, F. L. Burt Co.—186

Packaging Materials

Corrugated boxes. Booklet, Union Bag Camp Paper Corp.—191

Construction, Maintenance

Chemiseal packings. Bulletin AD-155, U. S. Gasket Co.—161

Stainless steel sheets. Corrosion data sheets, Jones & Laughlin Steel Corp.—206

Mildew-resistant enamel. Literature, DuPont—209

Sanitation & Cleaning

Speed cleaning compounds. Booklet, Oakite Products Inc.—160

In-plant chlorination. Bulletin No. I-58.37, Wallace & Tiernan Corp.—171

Scrubber - Vac. Literature, Finnell System, Inc.—189

Sulfamic acid cleaner. Booklet, DuPont—193

USEFUL REPRINTS—3 FREE*

Write key number on Reader Service Card

This 3-Phase Attack Routs Sanitation Hazards (p. 51)	**Free**	**D-1**
Map for Market Progress (p. 64)	**Free**	**D-2**
These Nomographs Simplify Syrup Calculations (p. 108)	**Free**	**D-3**
Work Simplification Program	**35¢**	**A-4**
Suggestion System Pays Dividends	**35¢**	**A-5**
Pushbutton Foods	**35¢**	**A-6**
Site Selection	**35¢**	**A-7**

* One free per reader. Offers good only while limited supply lasts. Send no money with order for priced reprints.

WRITE YOUR name, address and other pertinent information on card. Use of cards is restricted to food manufacturing management and consultants.

PLEASE TYPE OR PRINT—GIVE COMPLETE INFORMATION

Name .....

Position ..... Product .....

Company .....

Street .....

City ..... Zone..... State.....

FIRST CLASS
(Sec. 34.9 P.L.&R.)
PERMIT No. 64
NEW YORK, N. Y.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

6¢ POSTAGE WILL BE PAID BY—

FOOD ENGINEERING
READER SERVICE DEPARTMENT
330 WEST 42nd ST.
NEW YORK 36, N. Y.

PLEASE TYPE OR PRINT—GIVE COMPLETE INFORMATION

Name .....

Position ..... Product .....

Company .....

Street .....

City ..... Zone..... State.....

FIRST CLASS
(Sec. 34.9 P.L.&R.)
PERMIT No. 64
NEW YORK, N. Y.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

6¢ POSTAGE WILL BE PAID BY—

FOOD ENGINEERING
READER SERVICE DEPARTMENT
330 WEST 42nd ST.
NEW YORK 36, N. Y.

Equipment & Supplies in This Issue

Circle key numbers on card below

Construction, Maintenance
Air Line Filters, Regulators 70
Buildings 258
Cold Storage Doors.297
Insulation, Coil ...28
Insulation, Foamglas 839
Insulation, Silicone 118
Mildew-Resistant Enamels 373
Packings 274
Paint Strippings ..134
Plastic Coatings ...32
Protective Coatings 119
Re-Roofing System..121
Regenerating Exchangers 122
Rubber Tank Linings 263
Stainless & Plastics, Anti-Corrosive ..341
Stainless Steel, Anti-Corrosive..301, 312
Stainless Sheet and Strips 364
Steel Floorings ..135
Steel Shelvings ...128
Tank Linings 150

Controls & Instruments
AccuRay Container Inspectors 18
Air Conditioning System 331
Automatic Cutouts..108
Automatic Retort Controls 220
Checkweighers 250
Consistency Regulators 114
Density Control System 71
Electric Counters..107
Flow Meters 365
Flowrator Kits ...181
Hydraulic Tank Weighing System..263
Laboratory Centrifuges 132
Liquid Controls ..115
Moisture Control System 346
Motion Indicators..111
Paper Thermometers 130
Refractometers ...247
Scales 310
Scales, Bagging ..104
Scales, Blending ...87
Scales, Feeders & Meters 323
Shear Presses 127
Temperature Controllers 109
Temperature Regulators 270
Time Keepers 110
Ultra Centrifugation 128
Viscometers 129
Weight Indicators .256

Ingredients, Chemicals
Algins 236
Ascorbic Acids ...349
Citrus Products ..275
CMC 372
Colors .246, 298, 329
Defoamers 366
Extracts 362
Flavors 271, 279 308, 307, 333 376, 377
Ice Cream Stabilizers 30
Lactose 296
Mixes 329
MSG ...20, 257, 261 329, 368
Salt 300
Sausage Binders ..329
Seasonings 289 329, 358
Tenderizers 329
Thickeners 291
Vanilla Additives ..28
Vanillin 246
Vegetable Protein .368
Vitamins 246
Wheat Gluten 368
Yeast 322

Lubrication & Fuels
Lubricators 280

Management
Collators 24
Data on Stainless Steel 93
Laboratory Facilities 126
Packaging Statistics 93
Supervision 94

Materials Handling
Air Hoists 354
Barrel Unloaders ..25
Belt Conveying System 96
Belts, Wire Mesh..299
Conveying, Pneumatic 101
Conveyors 88
Conveyor Belts ...288 309, 313, 326 347, 356
Conveyor-Elevators.272
Elevators, Bucket..254
Grate Boards 103
Handling System ..366
Hydraulic Container Handlers ..20
Pallet Loaders ...338
Trucks, Electric Fork 314
Trucks, Electric Walkie 97
Trucks, Hand 98
Trucks, Lift, Attachments ...102

Packaging Machinery
Aerosol-Gassing Machine 33
Can Closers 259
Can Testers 343
Carteners, Multi-Unit 35
Case Packers 316
Case Sealers 34
Double Package Makers 340
Fillers.202, 336, 378
Formers-Loaders ..357
Formers, Fillers, & Closers 334
Formers-Wrappers ..17
Formers, Fillers, Sealers 264
Packers, Vibratory.105
Pail Handlers 21
Printing, Custom..106
Wrappers 298 348, 352

Packaging Materials
Bags 6, 345, 363
Boxes, Clam 2
Boxes, Corrugated 5, 200, 368
Boxes, Folding ..290
Can Carriers 8
Cans, Metal 295
Caps, Rubber Sealed 282
Containers, Corrugated 330
Fiber Drums for Shortening 8
Glass Jars 7
Polyethylene Films ..1
Pouches, Fish 4
Pouches, Polylaminated 267
Waxes, Dairy 360
Wrappers, Waxed..276

Pipes, Valves Tubing, Traps
Fitting & Valves..265
Nozzles 302
Nozzles, Spray 317, 337
Pipes, Plastic 305
Pipes & Tubing...277
Spouting Parts 99
Tubings, Plastic 90, 319
Tubular Goods 69
Valves 303
Valves, Air Control.76
Valves, Automatic .112

Power Generators, Motors, Transmissions
Boilers 8
Drives, Adjustable Speed 7
Drives, Helical Gear 7
Drives, Packaged ..7
Drives, Screw Conveyor 31
Drives, Variable Speed 1
Drives, Worm Gear.7
Motors 68, 8
Motors, Electric ...6
Steam Generators ..7
Steam Heaters ...32

Processing Equipment
Blenders 3
Choppers 1
Component Recoverers .....
Condensers, Vapor..
Continuous Rendering .....
Coolers, Multi-Zone.
Coolers, Pallet ....
Dicers 8
Dough-Twisters ...
Dust Collectors, Multi Tube 8
Equipment Engineering 2
Fillers, Rotary Piston 3
Filters 8
Filter Plates ....
Filters, Pressure Leaf .....
Filter Screens ....
Formers, Rotary Portion 3
Fryers, Deep Fat...
Heaters, Air 2
Homogenizers 8
Infra-Red Sections..
Instantizers .....
Liquid Dispensers ..
Microclones 8
Mills 287,
Mixers, Batch ....
Mixers-Blenders ...
Nozzle Elbows ....
Perforators .....
Pulverizers & Classifiers .....
Sifters, Gyro ....
Spray Dryers..86,
Turbo-Film Processors .....

Pumps & Air Compressors
Compressors, Horizontal ....
Pumps .321, 351,
Pumps, Centrifugal

Refrigeration, Conditioning
Air Conditioning Units .....
Freeze System ...
Precooling Installation .....
Refrigerants .....
Water Chillers ...

Sanitation & Cleaning
Chlorination .285,
Cleaners .....
Cleaners, Dry Acid .....
Dust Collectors ...
Insecticide Sprayers .....
Pan Cleaners ....
Power Sweepers ..
Scrubbers-Cleansers ....
Tank Washers ...

Transport
Commercial Trucks
Tank Cars .....

Workers' Supplies
Splash Goggles ..

SEPTEMBER, 1958

Expires December, 1958

CIRCLE KEY NUMBERS BELOW. FILL IN REVERSE SIDE, MAIL

NEW PACKAGES AND PRODUCTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EQUIPMENT	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63	64	65										
JUST OFF PRESS	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104
105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125
126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146
147	148	149	150	151	152	153	154	155												
ADVERTISERS' LITERATURE	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171
172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213
214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234
235	236	237	238	239	240	241	242	243	244	245										
ADVERTISEMENTS	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262
263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283
284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304
305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325
326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346
347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367
368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388
389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409
410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440											

USEFUL REPRINTS	Quantity	Key No.	Quantity	Key No.	Quantity	Key No.
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....

SEPTEMBER, 1958

Expires December, 1958

CIRCLE KEY NUMBERS BELOW, FILL IN REVERSE SIDE, MAIL

NEW PACKAGES AND PRODUCTS	1	2	5	6	7	10	11	12	13	14	15
EQUIPMENT	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63	64	65										
JUST OFF PRESS	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104
105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125
126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146
147	148	149	150	151	152	153	154	155												
ADVERTISERS' LITERATURE	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171
172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213
214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234
235	236	237	238	239	240	241	242	243	244	245										
ADVERTISEMENTS	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262
263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283
284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304
305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325
326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346
347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367
368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	386	388
389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409
410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430
431	432	433	434	435	436	437	438	439	440											

USEFUL REPRINTS	Quantity	Key No.	Quantity	Key No.	Quantity	Key No.
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....

UPON REFLECTION

You will come to Norda

You will come to get something extra. Norda keeps caring, in a reassuring, old-fashioned way, about creating fine Flavors for you—made with every modern skill of today's machines and methods.

Perhaps a greater concern for quality is Norda's something extra for you. You come, expecting excellence, here.

Flavor it with a Favorite—from

Norda

Samples, free, by sending your business letterhead to

NORDA, 601 W. 26 St., New York 1, N. Y. • Chicago • Los Angeles • San Francisco • Toronto • Montreal • Havana • London • Paris • Grasse • Mexico City

PROVERB PRATTLE

"Practice makes perfect"

The original "Practice is the best of all instructors," is found in the works of Publilius Syrus (circa 42 BC). Brought to Rome as a slave from Antioch, his brilliant intellect and wit gained him his freedom.

- For years we have produced the finest 100% natural vanilla flavors and Alva

True Vanilla

is the perfect quality flavor for food use.

- If a true vanilla is not required, the new delicious

Alvan

will give perfect flavor either alone or blended with True Vanilla.

- Samples and recommendations on request.

van Ameringen-Haebler, Inc.

521 West 57th Street • New York 19, New York

CHICAGO • LOS ANGELES • TORONTO • PARIS

Plants—Elizabeth and Union Beach, N. J.—Paris

Alva FLAVORS

For more data, circle 377 on Reader Service Card